

PLANTÆ UTILIORES;

OR

ILLUSTRATIONS OF USEFUL PLANTS,

EMPLOYED IN

THE ARTS AND MEDICINE.

BY M. A. BURNETT.

VOL. III.

London:

WHITTAKER & Co., AVE MARIA LANE.

TO
THE RIGHT HONOURABLE
THE EARL STANHOPE,

PRESIDENT OF THE MEDICO-BOTANICAL SOCIETY,
F. R. S., &c. &c. &c.

MY LORD,

It is with the deepest feelings of gratitude, that I lay the Third Volume of the "PLANTÆ UTILIORES" at your Lordship's feet.

I should not have ventured to intrude upon your leisure, with the request that you would accept so humble a work, did I not know that Genius is always lenient, and that the capability of making the highest efforts is ever accompanied by the most indulgent appreciation of the smallest ones.

I have the honour to remain,

MY LORD,

Your Lordship's

Most humble and devoted Servant,

M. A. BURNETT.

CONTENTS.

- LXV. *Lobelia Cavanillesii*.—Cavanille's Lobelia.
Rhododendron chrysanthum.—Golden-flowered Rhododendron.
- LXVI. *Cymbidium pendulum*.—Short-lipped Cymbidium.
Anthemis nobilis.—Common Chamomile.
- LXVII. *Pistacia Lentiscus*.—Mastic Tree.
Malva odorata.—Sweet-scented Mallow.
- LXVIII. *Begonia Dregii*.—Drege's Begonia.
Fucus Helminthocorton.—Bladder-wrack. *Fucus vesiculosus*.—Bladder Fucus.
- LXIX. *Veronica Chamædrys*.—The Germander Speedwell.
Prunus Lauro-cerasus.—The Cherry Laurel.
- LXX. *Polygonum Bistorta*.—Great Bistort, or Snake-weed.
Pimelea intermedia.—Intermediate Pimelea.
- LXXI. *Marcetia decussata*.—Cross-leaved Marcetia.
Scilla maritima.—Officinal Squill, or Sea Onion.
- LXXII. *Pinus Larix*.—The White Larch Tree.
Alstroemeria Errembaultii.—Errembault's Alstroemeria.
- LXXIII. *Convallaria Majalis*.—The Lily of the Valley.
Pyrus Cydonia.—The Quince Tree.
- LXXIV. *Begonia Martiana*.—Elephant's Ear.
Ranunculus Acris.—Upright Meadow Crowfoot.
- LXXV. *Rhamnus catharticus*.—The Buckthorn.
Genista bracteolata.—Racemose Genista.
- LXXVI. *Sinapis Alba*.—White Mustard. *Sinapis nigra*.—Black Mustard.
Gonolobus hispidus.—Hispid Gonolobus.
- LXXVII. *Aquilegia glandulosa*.—Glandular Columbine.
Aloe Socotrina.—Socotrine Aloe.
- LXXVIII. *Epidendrum radicans*.—Rooting Epidendrum.
Marrubium vulgare.—The White Horehound.
- LXXIX. *Amanita muscaria*.—Fly Amanita.
Epidendrum nutans.—Nodding Epidendrum.
- LXXX. *Whitfieldia Lateritia*.—Brick-colored Whitfieldia.
Glycyrrhiza glabra.—The Liquorice.
- LXXXI. *Acacia cultriformis*.—Coulter-shaped-leaved Acacia.
Dolichos pruriens.—Cow-hage Dolichos.

CONTENTS.

- No. LXXXII. *Protea cynaroides*.—Artichoke-Like Flowered Protea. 30
Daphne Mezereum.—Common Mezereum, or Spruce Olive. 30
- LXXXIII. *Epidendrum Schomburgkii*.—Schomburgk's Epidendrum. 37
Salix Russelliana.—Bedford Willow.
- LXXXIV. *Lolium temulentum*.—Bearded Darnel.
Clitoria fulgens.—Bright-Flowered Clitoria.
- LXXXV. *Arnica montana*.—Mountain Arnica, or Leopard's Bane. 41
Jasminum officinale.—The Jasmine, or Jessamine. 42
- LXXXVI. *Anthemis Pyrethrum*.—Spanish Chamomile, or Pellitory of Spain. 49
Ciconium Bentinckianum.—Bentinck Ciconium. 44
- LXXXVII. *Coreopsis Grandiflora*.—The Large Flowered Coreopsis. 45
Curcuma Zedoaria.—Zedoary. 45
- LXXXVIII. *Lilium speciosum*.—Shewy Lily.
Oenanthe crocata.—Hemlock Water-dropwort. 48
- LXXXIX. *Origanum vulgare*.—Common Marjoram. 49
Narcissus Moschatus.—The Long Flowered Daffodil. 50
- XC. *Russelia juncea*.—Rushy Russelia. 51
Polygala Senega.—Rattle-snake Milkwort 52
- XCI. *Bignonia Radicans*.—Ash-leaved Trumpet Flower. 52
Anethum graveolens.—Garden Dill.
- XCH. *Sphenotoma gracilis*.—Slender Sphenotoma.
Daucus Carota.—Wild Carrot.
- XCIII. *Boronia Serrulata*.—Rose Coloured Boronia 57
Bryonia dioica.—Red Berried Bryony. 58
- XCIV. *Epilobium Angustissium*.—Narrowest-leaved Willow Herb. 59
Menyanthes trifoliata.—The Buckbean, or Bogbean, Marsh Trefoil. 59
- XCV. *Anchusa tinctoria*.—Dyer's Alkanet. 61
Aquilegia Canadensis β *Gracilis*.—Slender Canadian Columbine. 62
- XCVI. *Begonia nitida*.—Shining-leaved Begonia. 63
Mentha piperita.—Pepper Mint.
Mentha pulegium.—Penny-royal. 65





Lobelia cavanillesii?

LOBELIA CAVANILLESII.—CAVANILLE'S LOBELIA.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, LOBELIACEÆ.

CALYX 5-lobed; tube obconical, ovoid or hemispherical. Corolla split longitudinally above, bilabiate, the tube cylindrical or funnel-shaped, straight; the upper lip generally smaller and erect, the lower generally spreading broader, 3-cleft or rarely 3-toothed. Anthers, the two lower, or rarely the whole, bearded at the top. Ovarium inferior, or half superior, or (even in species much allied) nearly free.

Stem, (4 feet high) erect, but slender and lax, glabrous, of deep red-purple, marked by prominent scars where the leaves had fallen, branched below, hardly above, somewhat woody. Leaves (3-4½ inches long) narrow lanceolate, acutely serrulate, spreading wide, glabrous, darker above than below, where the strong middle rib and reticulated veins are very prominent. Peduncles axillary, solitary, filiform, wiry, glabrous, purple, about as long as the leaves, ebracteate, spreading wide, or having a segmoid flexure outwards. Calyx green, purplish along the ribs, undulate, glabrous, 5-cleft, segments ovato-linear, as long as the tube which is campanulate. Corolla glabrous, bilabiate, inserted into the throat of the calyx, cleft along the whole of its upper side, where it is red, but yellow below and within; segments of the upper lip linear, acute, erect and twisted; lower lip oblong, slightly deflected, 3-dentate. Stamens scarcely shorter than the corolla; filaments at first yellow, afterwards reddish, inserted into the calyx at the base of the corolla, to which they adhere at their origin, monadelphous; anthers coherent along their whole extent, red on the outside before the corolla opens, afterwards leaden coloured, densely covered with long white hairs which arise from the lines between them, yellow on the inside and yielding yellow pollen. Pistil rather shorter than the stamens; style yellow, glabrous; stigma of two short blunt lobes, each, having a tuft of hairs as its base; germen half superior, conical at its apex, bilocular, placentæ central, and covered with many small ovules.

The genus *Lobelia*, though much reduced, may still require reform. *Lobelia Cavanillesii*, is among those in which a diversity of habit makes it desirable that a good technical character could be formed by which to separate them. They are in cultivation in this country as species of *Siphocampylus*, but with that genus, they neither agree in character nor habit. Decandolle considers tab. 139, *Lobelia laxiflora* of Humboldt and Kunth, and this, to be merely varieties of the same. The much smaller growth of this and the character which I have drawn of it, may, perhaps, keep them specifically distinct. In cultivation I have not seen them to vary so much as Decandolle thinks they do, but enough to make me little confident in this opinion. I believe they are both natives of Mexico.

Lobelia Cavanillesii was first described in this country by Sir W. J. Hooker in 1837, with a statement that it was imported into the Botanic Garden, Glasgow, from Professor Lehmann of Hamburg. It was received at the Botanic Garden, Edinburgh, from Mr. Rollison, in 1838, is now frequent in collections; its elegance and beauty entitle it to general cultivation. It is probable that Mr. Cameron's observations regarding the culture of *Siphocampylus bicolor*, may in some degree be applicable to this plant.

Derivation of the name. *Lobelia* in honour of Lobel, physician to James the VI. of Scotland.

Flowers, yes—Flowers again! It is the season of their approach; therefore make ready for their coming, and listen to the author of the "*Flora Domestica*," who is eloquent in praise of their eloquence. She tells us that

Ovid is so fond of flowers, that, in the account of the Rape of Proserpine in his *Fasti*, he devotes several lines to the enumeration of the flowers gathered by her attendants. Mr. Gibbon is very angry with him for it. "Can it be believed," says he, "that the Rape of Proserpine should be described in two verses, when the enumeration of the flowers which she gathered in the garden of Eden had just filled sixteen?" But surely this loitering of the poet, over his meadows and crocuses, conveys a fit sense of the pleasure

enjoyed by Proserpine and her nymphs; a pleasure, too, for which they expressly came forth, and by the too great pursuit of which, the latter were separated from their mistress.

In our own time, we may instance the late Mr. Shelley. Of a strong and powerful intellect, his manners were gentle as a summer's evening: his tastes were pure and simple: it was his delight to ramble out into the fields and woods, where he would take his book, or sometimes his pen, and having employed some hours in study, and in speculations on his favourite theme—the advancement of human happiness, would return home with his hat wreathed with briony, or wild convolvulus: his hand filled with bunches of wild-flowers plucked from the hedges as he passed, and his eyes, indeed every feature, beaming with the benevolence of his heart. He loved to stroll in his garden, chatting with a friend, or accompanied by his Homer or his Bible (of both which he was a frequent reader;) but one of his chief enjoyments was in sailing, rowing, or floating in his little boat, upon the river: often he would lie down flat in the boat and read, with his face upwards to the sunshine. In this taste for the water he was too venturesome, or perhaps inconsiderate; for it was rather a thoughtlessness of danger, than a braving of it. In the end, as is well known it was fatal to him: never will his friends cease to feel, or to mourn his loss; though their mourning will be softened by the contemplation of his amiable nature, and by the memory of that gentle and spiritual countenance, “which seemed not like an inhabitant of the earth” while it was on it.

Among the lovers of flowers, it is a pleasure to be able to name the gallant and accomplished prince, Alexander Mavrocordato, one of the chief leaders of the Greeks in their glorious struggle for freedom. A botanical work, not long since published in Italy, is dedicated to him on account of his known fondness for the subject. To the same prince remarkable for exhibiting not only the gentle taste for flowers, but most of the characteristics, physical, intellectual, and moral, of his Hellenic ancestors, Mr. Shelley appropriately dedicated his “Hellas”—Among the Ancient Greeks this taste was very general, as may be gathered from many writers. In the following passage from the *Travels of Anacharsis*, a work in which several of these authorities are assembled: the author describes a visit to a friend who had retired to his country-house:—

“Having crossed a court-yard peopled with fowls, ducks, and other domestic birds, we visited the stable, the sheep-fold, and the flower-garden; where we saw in succession narcissuses, hyacinths, anemones, irises, violets of different colours, roses of various kinds, and all sorts of odoriferous plants. You will not be surprised, said he, at the care I take in cultivating them; for you know that we adorn with them the temples, altars, and statues of our gods: that we crown our heads with them in our festivals, and holy ceremonies; that we scatter them upon our tables, and our beds; that we even consider the kinds of flowers most agreeable to our divinities. Besides, an agriculturist should not neglect small profits; whenever I send to the market of Athens, wood, provision, or fruit, I add some baskets of flowers, and they are seized instantly.”

In another part of the same work, the author describes a marriage ceremony in the Island of Delos, in which flowers, shrubs, and trees make a conspicuous figure. He tells us that the inhabitants of the island assembled at day-break, crowned with flowers; that flowers were strewed in the path of the bride and bridegroom: the house was garlanded with them; singers and dancers appeared, crowned with oak, myrtle, and hawthorns; the bride and bridegroom were crowned with poppies; and upon their approach to the temple a priest received them at the entrance, presenting to each a branch of ivy,—a symbol of the tie which was to unite them for ever.

The modern Greek word for “to be married,” is literally “to be crowned,” and the placing a chaplet of flowers on the bride's head is still the principal rite of the marriage ceremony in the Greek Church, not only in the Levant, but in Russia and elsewhere.

It was not in their sports only that the Greeks were so lavish of their flowers: they crowned the dead with them; and the mourners wore them in funeral ceremonies. Flowers seem to have been to this tasteful people a sort of poetic language, whereby they expressed the intensity of feelings to which they found common language inadequate. Thus we find that their grief, and their joy, their religion, and their sports, their gratitude, admiration, and love, were alike expressed by flowers.



Rhododendron chrysanthum.

RHODODENDRON CHRYSANTHUM.—GOLDEN-FLOWERED RHODODENDRON.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ERICEÆ.—THE HEATH TRIBE.

Figs. (a and b) represent the capsule and its valves; (c) a section of the same to show the cells.

THIS beautiful shrub is a native of the mountains of Siberia, Kamtschatka, and Behring's Island, flowering in June and July, and ripening its fruit in September. It was introduced by Mr. Joseph Bush, in 1796, into our gardens, where it flowers, though rarely, in the middle of summer. In its native climes, it grows not only on the mountain tops, but on the banks of rivers.

The stem in alpine situations seldom exceeds a foot in height; in lower ground it grows to a foot and a half, sending off numerous decumbent spreading branches, having their ends emerging from the moss, and being covered with a brown bark. The leaves are terminal, few, ovate, oblong, of a coriaceous texture and attenuated towards the footstalk; the upper ones are reticulated, rugged, and of a deep green colour; the under pale or sub-ferruginous, very smooth, having the margin entire and bent inward. The flowers are large, yellow, and placed alternately at the ends of the branches on very long peduncles, forming sertula or simple umbels. They are usually six or fewer, but sometimes about ten, erect and hairy. The calyx is inferior, persistent, and divided into five deep teeth; the corolla is pentasymphetalous, nearly wheel-shaped, and divided into five rounded, nearly equal, spreading segments, the three upper ones being only a little larger than the other two, striated towards the tube, with livid dots; the lower ones unspotted. The stamens are ten, equal, thread-shaped, declining, with incumbent, oblong anthers. The germen is pentagonal, bearing a long slender style, and terminated by a 5-lobed stigma. The testa adheres firmly to the nucleus; the albumen is fleshy, the embryo cylindrical, in the axis of the albumen, and the radicle opposite the hilum. The capsule is ovate, somewhat angular, slightly curved, submentose, and divided into five or ten cells, which contain many small, grey, irregular seeds like saw-dust.

Professor Pallas was the discoverer of this plant during his tour through Siberia; and from his splendid work, we learn that the inhabitants of Siberia call the shrub *schéi* or tea; and drink a weak infusion of it as a refreshing beverage, in the same way as we do that of the Chinese plant.

It appears from Pallas' account, that the Cossacks gather its leaves in September, when the capsules are ripe; but it is then less bitter, and the whole plant is less flourishing than when in flower; at which time he recommends it to be obtained for medicinal use.

QUALITIES.—The leaves smell, when fresh, something like rhubarb; when dried they are inodorous, but have an austere, bitterish taste, slightly resembling our common oak leaf. The decoction has a disagreeable odour, and a rough, bitter, acrid taste.

MEDICAL PROPERTIES AND USES.—This plant was first used as a narcotic and astringent application for hæmorrhoidal fluxes; but it was not till Gmelin and Steller had lauded its virtues, that it excited the notice of the medical world. It appears that the Siberians, on the banks of the river Lena, when overcome by fatigue and cold, apply a decoction of its leaves to their limbs, to relieve pain and induce sleep. They also exhibit it for rheumatic and other painful affections of the muscles and joints, in the following manner: they take about two drachms of the dried shrub, stalks, and leaves, which, with nine or ten ounces of boiling water, they put into an earthen pot; lute on the head, and place it in an oven during the night. This infusion, *for it is not allowed to boil*, is drank the next morning for a dose. It occasions heat, together with a degree of intoxication, resembling the effects of spirituous liquors, and a singular kind of uneasy sensation in the limbs affected, accompanied by creeping sensations, which are likewise confined to the diseased parts. The patient is not permitted to quench the thirst which the medicine occasions; as fluids, particularly cold water, produce vomiting, whereby the power of the specific is lessened. In a few hours, all disagreeable effects disappear, commonly with two or three alvine evacuations. The patient then finds himself greatly

relieved of his disorder, and has seldom occasion to repeat the medicine above two or three times to complete a cure.

From experiments which have been instituted in this country, the yellow *Rhododendron* appears to exert a stimulant, and diaphoretic effect; and as far as our experience goes, it supports the correctness of Dr. Home's remarks, who states that it has a power on the heart, whereby arterial action is often much diminished. In one case he mentions that the pulse was reduced to thirty-eight beats, although immediately after its administration excitement was brought on, which was followed by a proportionate diminution in the arterial action. Pallas relates in his travels, that it is a common and successful remedy among some of the Tartar tribes in gout, and other painful disorders. They drink till it brings on some degree of vertigo, and symptoms of intoxication, which effects are generally accompanied by a tingling sensation in the parts affected, and an abatement of pain. These effects were also noticed by Koelpin, a friend of Professor Pallas, who not only speaks of its efficacy on himself, but in a tract, written in German and published at Berlin, extols it for its virtues in relieving gout and rheumatism.

Sometimes it excites head-ache, nausea, vomiting, delirium, and other unpleasant symptoms. Capriolus, a companion of Steller, having eaten ten leaves, soon after began to stagger, toss his head about, and to reel. After a short time, he fell on his knees, in vain attempting to rise; and although milk was copiously administered to him, he became overpowered with sleep for an hour and a quarter, during which time he started continually, and appeared terrified. When he awoke he appeared as cheerful as before, and it failed afterwards to produce the same effects. After this, the servants of Steller were constantly taking small quantities of it, on account of its pleasant intoxicating effects.

When we administer it, we put half an ounce of its leaves in twelve ounces of water, and allow them to *simmer only*, for four hours. Of the strained liquor, a quarter may be given to an adult every four hours; who, during its administration, must remain in bed, and its effects should be closely watched. The leaves of a different species, probably the *R. Caucasicum*, have been, for several years, sold by druggists for this plant; but Mr. Butler, of Covent Garden, has obtained a considerable quantity of the genuine drug from Siberia; and in those constitutions with which colchicum disagrees, we venture to recommend it as a very efficacious remedy.

When fruits, and herbs, and flowers are decayed and perished, they are continually succeeded by new productions; and this governing power of the Deity is only His creating power constantly repeated. So it is with respect to the races of animated beings. What an amazing structure or parts, fitted to strain the various particles that are imbibed; which can admit and percolate molecules of such various figures and sizes! Out of the same common earth what variety of beings!—a variety of which no human capacity can venture the calculation! and each differing from the rest in taste, color, smell, and every other property! How powerful must that art be, which makes the flesh of the various species of animals differ in all sensible qualities, and yet be formed by the separation of parts of the same common food! In all this is the Creator every where present, and every where active: it is He who clothes the fields with green, and raises the trees of the forest; who brings up the lowing herds and bleating flocks; who guides the fish of the sea, wings the inhabitants of the air, and directs the meanest insect and reptile of the earth. He forms their bodies incomparable in their kind, and furnishes them with instincts still more admirable. Here is eternally living force, and omnipotent intelligence.



Cymbidium pendulum.

CYMBIDIUM PENDULUM, VAR. BREVI-LABRE.

SHORT-LIPPED THICK-LEAVED CYMBIDIUM.*

CLASS XX. GYNANDRIA.—ORDER I. MONANDRIA.

NATURAL ORDER, ORCHIDACEÆ.—THE ORCHIS TRIBE.

As far as our experience goes, the ordinary variations to which Orchidaceæ are subject, are in all respects analogous to what is met with in other plants, and as is exemplified by the plant before us from Singapore, in which, while the lip becomes shorter, broader, and with a much blunter middle lobe, every thing else remains so exactly the same, that nobody can entertain a doubt about the specific identity of the plant with *Cymbidium pendulum*. The vertical plates of the lip, in particular, are quite unchanged, shewing, as we find it always shewn, that the elevations and processes of the surface of the lip are of the utmost importance in considering the limits of species.

The variations that experience tells us occur in the structure of the same species of tropical Orchidaceæ are principally in colour and size, just in fact as happens in those of Europe. Our common wild Orchises have purple or white flowers indifferently, and in some specimens they are much larger than in others, as is more particularly shewn by *Orchis latifolia*. Just so with the epiphytes. The flowers of *Catasetum tridentatum*, for instance, are spotted or quite green, and much larger in some varieties than in others. The well known *Oncidia ornithorhynchum* and *ampliatum* exhibit great differences in the size and depth of colour of their flowers; so do *Lycaste Skinneri* and *Cattleya Forbesii*; indeed, if one can judge from Mr. Hartweg's collection, it is very common for species found on the west of the Cordilleras to have much smaller flowers than when they occur on the east side. As to differences in form again, the greater or less breadth of the petals and the lobes of the lip is very uncertain in *orchis militaris* and its allies; and in the same way *Catasetum tridentatum*, *Cyrtorchilum maculatum*, and other epiphytes differ among themselves. But so far as is yet known, there is nothing peculiar in the tendency to variation among tropical Orchidaceæ, beyond what we find in all other plants, with the exception, of the masquerading species of *Catasetum* and *Cynoches*.

It should be grown in turfy heath-mould, of rather closer texture than that commonly used for Orchidaceous plants. The pot should be well drained, in order that all superfluous water may pass off freely, otherwise the roots will perish. Like some other species of the genus, this requires an ample supply of water at all times; and the atmosphere to be kept as moist as possible, especially during the growing season. To prevent the leaves from being scorched, the house should be slightly shaded in sunny weather. In summer the temperature should never be allowed to rise much above 80° by day, nor to fall below 68° at night; but in winter it should never be raised higher than 64° by artificial means.

This morning as we sat at breakfast, thinking, says a popular writer, with our eyes fixed on a set of the British Poets, which stand us instead of a prospect, there came by the window, from a child's voice, a cry of "Wall-flowers." There had just been a shower; sunshine had followed it; and the rain, the sun, the boy's voice, and the flowers, came all so prettily together upon the subject we were thinking of, that in taking one of his roots, we could not help fancying we had received a present from Nature herself,—with a penny for the bearer. There were thirty lumps of buds on this penny root; their beauty was yet to come; but the promise was there,—the new life,—the Spring,—and the rain-drops were on them, as if the sweet goddess had dipped her hand in some fountain, and sprinkled them for us, by way of message; as who should say, "April and I are coming."

What a beautiful word is *spring*! At least one fancies so, knowing the meaning of it, and being used to identify it with so many pleasant things. An Italian might find it harsh; and object to the *Sp* and the terminating consonant; but if he were a proper Italian, a man of fancy, the worthy countryman of Petrarch and Ariosto, we could convince him, that the word was an excellent good word, crammed as full of beauty as a bud,—and that *S* had the whistling of the brooks in it, *p* and *r* the force and roughness of what-soever is animated and picturesque, *ing* the singing of the birds, and the whole word the suddenness and salience of all that is lively,—Spring, Spring-time, a Spring-green; a Spring of water—to Spring—Springal, a word for a young man, in old (that is, ever new) English poetry, which with many other words has gone out, because the youthfulness of our hearts has gone out,—to come back with better times.

Quit the carking cares of the world,—come with me for a day into the country—and thou wilt be the

* We are indebted to Dr. Lindley's charming work, the Botanical Register, for the figure and description.

better for it all the year after. We will indulge in sweet thoughts and solacing interchanges of kindly feeling.—

And now we are in a quiet, rural spot, far from the busy hum of men,

—————so that a whispering blade
Of grass, a wilful gnat, a bee, bustling
Down in the blue-bells, or a wren light rustling
Among the leaves and twigs, might all be heard.

No sound strikes upon our ear but the grateful music of nature. "There is a spirit of youth in every thing."—

Through wood, and stream, and hill, and field, and ocean
A quickening life from the earth's heart has burst,
As it has ever done,

"Fresh leaves and flowers deck the dead reason's bier;" and ah!—there is one of them—the primrose. See how it peeps from yon southern mossy bank, pale and motionless—"not wagging its sweet head,"—so hushed and still is the atmosphere, that there is not even a playful breeze abroad "to fondle the flowers! in its soft embrace." This darling flower, this child of spring, "that comes before the swallow dares, and takes the winds of March with beauty," is my peculiar favorite. I never meet with a tuft of them for the first time, but there goes to my heart an intense feeling of their calm and innocent loveliness. They are to me heralds of young and fresh-bursting life, dear pledges of the renewed existence of nature. They tell me of the vernal joys that are at hand, awaiting me. This feeling I experience at every returning season: it is connected with many an early association. I delight to follow and trace it far back, into the years of childhood,

And find no end, in wandering mazes lost.

I can discover nothing but "the man's thoughts dark within the infant's brain." How mysterious are the operations of the mind at that budding period; To what point of our infancy are we to refer the first dim shadowy associations? How can we trace the early dawning of

—————that primal sympathy,
Which, having been, must ever be,

and which makes the same poet exclaim, in a line full of deep and philosophic thought,

"The child is father of the man?"

And then, again, by what insensible gradations do we progress to the laughing thoughtlessness of boyhood! Oh! how I love to revert to those days of careless gaiety and unrestrained freedom! Life then had no stern realities. Every object was clothed in the fairy hues of imagination. I lived and moved as in a dream; and hope was "as broad and easing as the general air." Many of my happiest moments are derived from the golden recollections intertwined with the very heart-strings of my being,—old dwellers in my bosom, that ever linger with me,

And, of the past, are all that cannot pass away!

Time and care make sad havoc with these aerial enjoyments.

Whither is fled the visionary gleam!
Where is it now, the glory and the dream!

Youth invests all which it sees and desires, with the rainbow tints of fancy.

Yet let us press on joyfully in our course. "There be delights, there be recreations, and jolly pastimes, that will fetch the day about from sun to sun, and rock the tedious year as in a delightful dream."

A thousand pure pleasures remain to us. Foremost, and the most soothing among them, is natural scenery. I lately met with a passage, written some years ago, in a periodical work, which finely and feelingly expresses all that I would say on this subject. The author, writing from a lonely spot in Switzerland, describes it, and thus proceeds:—

"During those dreams of the soul, which our hopes and wishes create, and our reason is unable to destroy,—when we wish to retire from the loud and stirring world, and among the loveliness of some far-removed valley, to pass the days that fate may have assigned us,—where the mind endeavours to combine in one scene every beauteous image that memory can supply, or imagination picture,—it would be impossible to conceive the existence of a more lovely landscape. So sweet is this spot, that the very winds of heaven seem slowly and fondly to pass over it, and the little summer birds sing more cheerily amid its holy solitude. Since I have seen it, I have not been conscious of feeling any emotion allied to evil. Indeed, what could make the heart evil-disposed among such general peace and happiness? No mind can withstand the influence of fair and lovely scenery, and the calmness of a fine summer-evening, when there is nothing to prevent its sinking into the very furthest recesses of the heart. For myself, at least, I can say that I never walked with my face towards a fine setting sun, without feeling it to be, as our own most majestic poet has expressed it, 'a heavenly destiny.' Nothing tends so powerfully to extinguish all bad passions as the contemplation of the still majesty of nature."



Anthemis nobilis.

ANTHEMIS NOBILIS.—COMMON CHAMOMILE.

CLASS XIX. SYGENESIA.—ORDER II. POLYGAMIA-SUPERFLUA.

NATURAL ORDER, CORYMBIFERÆ.

Figs. (a) represents a floret of the radius; (b) a floret of the disc with the seed and chaffy scale; (c) the anthers spread; (d) a section of the receptacle.

CHAMOMILE is a well-known perennial plant, which grows wild in Cornwall, Surrey, and many other parts of Britain. We found it in great abundance on Wimbledon Common, Enfield Chase, and all the dry elevated heaths near London. It flowers in August and September.

The roots are perennial, jointed, and fibrous. The stems, in a wild state, are mostly trailing, a span or more in length, round, furrowed, foliaceous, and downy. The leaves are bipinnate, and of a pale green colour; the leaflets small, rather flat above, somewhat hairy, and generally divided into three pointed segments. The flowers are terminal, solitary, with a convex yellow disc, and numerous white, spreading, reflexed rays. The involucre is hemispherical, and composed of several closely imbricated downy scales, with thin membranous edges; the florets of the disc are numerous, yellow, perfect, tubular, with five equal spreading segments; those of the radius, usually about eighteen, white, ligulate, spreading, with three teeth; the filaments are five, very short, capillary, and have their anthers united into a cylindrical tube; the germen is obovate, supporting a slender style, and furnished with a bifid reflexed stigma. The seeds are ovate, compressed and slightly crowned. The receptacle is conical, surmounted by minute chaffy scales, one to each floret, perceptible even to the naked eye, but very conspicuous under a lens.

The generic name, *Anthemis* is supposed to be derived from *Ἀνθεω floreō*, having an abundance of flowers;—the English from *χαμαι*, and *μελον*, an apple, hence the Latin "*chamomilla*," *quoniam odorem mali habeat*. (Plin. l. 22. c. 21.)

QUALITIES AND CHEMICAL PROPERTIES.—The flower of this plant is collected before it is fully blown, and then dried. As the taste and odour reside in the tubular florets, which are largest in the single flowers, these are preferable to the double that are always sold in the shops—another instance of utility being sacrificed to appearance. Chamomiles have a bitter, aromatic, and slightly pungent taste, and a strong unpleasant odour. By distillation they yield a volatile oil, on which their virtues appear to depend; but in the preparation of the extract it is lost. Boiling also dissipates the oil. Both water and alcohol take up their active parts, which are the essential oil, resin, and a bitter principle.

All soluble preparations of iron, nitrate of silver, oxymuriate of mercury, acetate and sub-acetate of lead, solutions of isinglass, and infusion of yellow cinchona bark, are precipitated by the infusion, and therefore "*incompatibles*."

MEDICAL PROPERTIES AND USES.—Chamomile is a powerful tonic and stomachic, and inferior to no other, when properly administered. It is an excellent and popular remedy for a weakened state of the stomach, attended by the ordinary symptoms of indigestion, as heartburn, loss of appetite, flatulency, &c. In such affections, particularly if accompanied by a sluggish state of the intestinal canal, the cold infusion, made with half an ounce of the flowers to a pint of water, and combined with aromatics and alkalies, is grateful to the stomach: or, should hot water be employed, it must be allowed to stand on the flowers ten minutes only;—the time recommended in the London Pharmacopœia: unless, indeed, we wish to excite or encourage vomiting, when a tepid strong infusion will do both. Administered in substance, Chamomile has been successfully employed in intermittent fevers; but occasionally produces diarrhœa. Sir John Pringle states, that the antiseptic powers of the Chamomile are 120 times greater than those of sea-salt: and, externally, the flowers are used for fomentation: hot water, however, is nearly as efficacious. The infusion is

a useful vehicle for other more active remedies: and the extract, in doses of ten or fifteen grains, combined with myrrh and preparations of iron, affords a powerful and convenient tonic, in the form of pill. The dose of the powder is from ten grains to half a drachm; that of the infusion from one ounce to two ounces, two or three times a day.

OFF. PREP.—Decoctum *Anthemidis nobilis*. *L.E.*

We have already remarked, that the essential oil is dissipated by boiling.

Infusum *Anthemidis*. *L.E.*

Extractum *Anthemidis*. *L.E.*

Oleum *Anthemidis*. *L.*

Dr. Schall affirms that chamomile is not only an effectual preventive of nightmare, but the sole certain remedy for that complaint.

The Chamomile, says Mr. John Brown, is the PLANT PHYSICIAN. He says, not only that decoctions, or the leaves dried and powdered of the *Anthemis nobilis*, will destroy insects, but that nothing contributes so much to the health of a garden as a number of Chamomile plants dispersed through it. No green-house or hot-house should be without Chamomile in a green or in a dried state; either the stalks or flowers will answer. It is a singular fact, that if a plant is drooping and apparently dying, in nine cases out of ten, it will recover, if you place a plant of Chamomile near it.—Gardener's Magazine.

The *Marutafetida*, formerly called *Anthemis Cotula*, Stinking Chamomile, or May-weed, *receptaculis conicis, paleis setaceis, fructibus nudis*, has been erroneously ranked by some writers on toxicology among the vegetable poisons. It is an indigenous annual, growing in waste grounds and amongst corn. The whole plant has a strong fetid odour, and where it abounds, is often found to blister the hands of those that gather it, which Sir William Hooker attributes to the minute glands sprinkled over its surface. It is never prescribed in present practice, nor are we aware of its having ever proved poisonous in this country. Dr. Barton states that, like the common Chamomile, a strong decoction, given in the dose of a teacupful, will produce copious vomiting and sweating. In America it is used by the vulgar, as a sudorific in chronic rheumatism. A weak infusion, taken to a moderate extent, nauseates the stomach, and is sometimes employed to promote the action of an emetic. It was formerly used internally in scrofula, and hysteria; and externally in fomentations.

Nature! to me, thou art more beautiful
In thy most simple forms, than all that man
Hath made, with all his genius, and his power
Of combination: for he cannot raise
One structure, pinnaced, or domed, or gemm'd,
By architectural rule, or cunning hand,
Like to the smallest plant, or flower, or leaf,
Which living hath a tongue, that doth discourse
Most eloquent of Him, the great Creator
Of all living things. Man's makings fail
To tell of aught but this, that he, the framer
Sought also to create, and fail'd, because
No life can he impart, or breath infuse,
To give inertness being.



Pistacia Lentiscus.

PISTACIA LENTISCUS.—MASTIC *TREE.

CLASS XXII. DICECIA.—ORDER V. PENTANDRIA.

NATURAL ORDER, ANACARDIACEÆ.—THE CASHEW TRIBE.

Fig. (a) represents a female flower magnified; (b) male flowers; (c) back view of a female flower, shewing the five-cleft calyx.

THE Mastic-tree is a native of the south of Europe and the Levant, and appears by Evelyn's *Kalendarium Hortense* to have been cultivated in Britain so early as 1664. It is less hardy than the Chian turpentine-tree, requiring the shelter of a green-house; hence it never attains here any degree of perfection. In Italy it is very common, flowering in April, as well as in the island of Scio, where its resin, called mastic, is chiefly obtained, and where different varieties are consequently cultivated with care. It differs from every other known *Pistacia* in having no odd leaflet, as well as in its simply racemose inflorescence.

This tree, which seldom exceeds twelve feet in height, and eight or ten inches in diameter, is covered with a smooth brown bark, and towards the top sends off numerous branches. The leaves are abruptly pinnate, consisting of five or six opposite pairs of narrow ovate leaflets, of a dark green colour on the upper, and pale on the under side. They are smooth, pointed at each end, and tipped at the point with a minute curved spine; sessile or closely attached to the common footstalk, which is winged or furnished with a narrow foliaceous expansion on each side, running from one pair of leaflets to the other. The flowers appear in simple axillary racemes in April and May. In the *male* flowers, the calyx is divided into five minute ovate segments; the filaments are four or five in number, very short, and supporting large, brown, erect, quadrangular anthers. The *female*, like those of the male, have no corolla, and are placed upon a common peduncle in alternate order; the calyx consists of three small squamous segments; the germen is egg-shaped, larger than the calyx, and supports two or three styles, with reflexed clubbed stigmas. The fruit is an obovate, smooth, reddish drupe, containing a smooth nut.

In the island of Chios, the official mastic is obtained most abundantly, according to Tournefort, by making transverse incisions in the bark of the tree about the beginning of August, from which the resin exudes in drops, and hardening on the trees, or running down and concreting on the ground, is thence collected for use. The time chosen for making these incisions is the first of August, when the weather is very dry; during the following day the mastic begins to appear in drops, which continue to exude till the latter end of September. According to Olivier (*Travels in the Ottoman Empire*) mastic is gathered in twenty-one villages of the island of Scio; and the incisions, he says, are made from the 15th to the 20th of July, according to the Greek calendar. Cloths are frequently placed under the tree, so that the mastic which trickles from it may not be contaminated with earth and other impurities. By the regulations made in the island, the first gathering cannot take place before the 27th of August. It lasts eight successive days, after which fresh incisions are made in the trees till the 25th of September, and then the second gathering is made, which likewise lasts eight days. After this time the trees are cut no more, but the mastic which continues to run is collected till the 19th of November, on the Monday and Tuesday of every week. It is afterwards forbidden to gather this production, which in the twenty-one villages of Scio, amounts on an average to 50,000 *okes*, and even more: twenty-one thousand belong to the aga, who farms this commodity, and are delivered by the cultivators in payment of their personal impost. They are paid for the surplus at the rate of 50 *paras* per *oke*, (nearly 16 sous the pound,) and they are prohibited, under very severe penalties, from selling or disposing of it to any other than the aga who farms it. That of the best, and finest quality is sent to Constantinople, for the palace of the Sultan; that of the second quality is intended for Cairo. The merchants generally obtain a mixture of the second and third quality. The lentisc or mastic-tree is raised in various parts of Europe, particularly in Italy and Portugal, but no resin is said to issue from it in these climates.

QUALITIES AND CHEMICAL PROPERTIES.—Mastic, which is brought to us in yellowish semi-transparent brittle grains or tears, is nearly inodorous, except when rubbed or heated, when it exhales an agreeable odour. It is almost tasteless; and when chewed it is soft and tough, like wax, but soon becomes white, opaque, and brittle; hence it is frequently employed by surgeons for stopping carious teeth. In Turkey great quantities of it are chewed for sweetening the breath and strengthening the gums; and it is to this use of the resin as a masticatory, that it is supposed to owe its name. Its specific gravity is 1.074.

By digestion with alcohol it is separated into two portions; the one soluble in this fluid, and the other insoluble; the former composes about three-fourths of the whole, and is pure resin; the latter, in most of its properties, resembles caoutchouc. The nature of this insoluble portion was first discovered by Kind, an apothecary at Berlin, whose observations have since been confirmed by Mr. Matthews. Mr. Brande, however, has observed that when this insoluble substance is dried, it becomes brittle, in which respect it differs from caoutchouc. From these experiments, and those of Dr. Wollaston, there can be little doubt that it is a peculiar vegetable principle. Mastic is perfectly soluble in sulphuric ether, from which it is precipitated by alcohol in the form of a white curd. When distilled, either with water or alcohol, according to Dr. Thomson, no volatile oil is obtained from this substance. It should be chosen clear, of a pale yellow colour, and of an agreeable odour when heated or rubbed.

MEDICAL PROPERTIES AND USES.—Although the principal consumption of mastic is among varnish makers, it has been long introduced into medicine under the character of an astringent and diuretic in obstinate coughs, dysentery, and internal ulcerations; but it probably possesses no powers of any kind but what may be ascribed to its moderately stimulant effect upon the organs of secretion. By means of mucilage and syrup, mastic dissolved in alcohol, is rendered miscible with water, and supposed to possess the virtues of turpentine in an inferior degree. The Arabians regard it as astringent and tonic, and Avicenna speaks of its discutient qualities; he moreover says, “Tussi et sanguinis reiectione prodest. Stomachum roborat et jecur.” In pharmacy it is sometimes employed as an adjunct to pills, to render them less immediately soluble in the stomach, and consequently more progressive in their operation. The wood (*Lentisci lignum*) is received into the materia medica of some of the foreign pharmacopœias, and highly extolled in gouty, and dyspeptic affections. In the arts mastic is much used, in combination with lac, elemi, and other resins, in the composition of varnishes; and the jewellers mix it with turpentine, and ivory black, and place it under the diamond to add to its lustre. Virey, in his “Histoire Naturelle des Médicaments,” informs us, that from the kernels of the mastic-tree an oil may be obtained which is fit for table; and according to Desfontaines and Duhamel the *Pistacia atlantica*, and *P. chia* yield resins which resemble mastic.

Mr. Field says, in his Chromatography, a book most amusing to the general reader, as well as instructive to the artist, “It is true that other soft resins are sometimes substituted for that of mastic, and that very elaborate compounds of them have been recommended and celebrated, but none that possess any evident advantage over the simple solution of mastic in rectified oil of turpentine. Correggio and Parmigiano, according to Armenini, used a varnish of common white resin mixed with naphtha. Other old masters are said to have employed mastic and sandarac dissolved in nut, poppy, or linseed oils, and this seems evident from the difficulty of removing varnishes from very old pictures. Mastic varnish is easily prepared, by digesting in a bottle during a few hours, in a warm place, one part of the dry picked resin with two parts or more of the oil of turpentine. A sufficient quantity of this, cleared, varnish to gelatinize or set up either of the before-mentioned drying oils of linseed, constitutes the transparent *macgilt* of the painter, &c. If, instead of drying oil, the simple pure linseed oil be used with about an eighth of acetate or sugar of lead dissolved in water, or ground fine, we obtain variously the opaque mixture called *gumtion*.

This, the most celebrated production of the island of Scio, is considered of so much importance there, that the inhabitants of the villages that furnish it, had, when under their turkish masters, many peculiar privileges. They acknowledged no other chief than the *aga* or lord who farmed that production; they were exempt from contributing their labour gratuitously on public occasions, being obliged only to convey the mastic to the town, and to furnish beasts of burden to this aga when he travelled about the villages in order to collect it. “We had an opportunity,” says M. Olivier, “of seeing the aga on his tour, preceded by military music, followed by several *tchocadars*, and surrounded by a great number of villagers, eager to attend on him. Had we not been previously informed, we should much rather have taken him for a military commander than a simple farmer of taxes.”

The culture of the lentisk is simple, and attended with little trouble; it consists much more in cleansing than in turning the soil. The cultivators do not prune this tree, but, on the contrary, endeavour to prevent the stem from growing in a handsome form, as it has been found from experience that the lentisks which trail yield much more mastic than those the stems of which are straight and shooting.

It may readily be imagined that all the Greeks in the island of Scio, would gladly have become cultivators of the lentisk, by which they would gain exemption from the petty and harrassing tyranny to which others were constantly subjected; but while it was prohibited under the severest penalties to offer the mastic for sale to any but the aga who farmed it, the cultivation of the lentisk was forbidden out of the limits traced by the government.

DOSE.—The dose may be from gr. x. to ʒss. twice a day.



Malva odorata?

MALVA ODORATA.—SWEET-SCENTED MALLOW.

CLASS XVIII. MONADELPHIA.—ORDER VI. POLYANDRIA.

NATURAL ORDER, MALVACEÆ.—THE MALLOW TRIBE.

STEM suffruticose, round, branched, from three to twelve feet high, covered more or less with a glandular pubescence. Leaves heart-shaped, pubescent, obtuse, from three to five lobed, lobes acutely notched, sometimes on the lateral branches the leaves are entire, *not lobed*, and only acutely dentate. Petioles short, varying from one third to one fifth the length of the leaves, and similarly pubescent. Stipules ovate, lanceolate. Flowers pink, solitary, issuing from the axils of the leaves. Peduncle shorter than the leaves, and covered with long hairs. Involucellum three-leaved, leaves ovate, obtuse, hairy, arranged alternately with the leaves of the calyx. Calyx pubescent, leafless, broadly ovate and longly acuminate. Petals five, obovate, longly unguiculate, unguis hairy, and forming a tube; margin of the lamina more or less irregular. Filaments numerous, smooth, adhering to the unguis of the petals, and of an indigo colour. Anthers kidney shaped, of a similar colour to the filament, dehiscing laterally, longitudinally. Pollen round, echinate, transparent in the centre. Styles about nine, longer than the filaments and anthers, and of a purple colour. Stigma linear, papillose.

POPULAR AND GEOGRAPHICAL NOTICE. Many of the plants composing the genus *Malva* are showy, handsome, and deserving of cultivation by the amateur, and from the delicacy of the petals, and the freeness of the flowering, there are perhaps but few more worthy of this distinction than the one now figured. In addition to its beauty, it gives out a delicious balsamic fragrance, scenting the whole house; this property, however, is not preserved in dried specimens. The genus *Malva* is pretty generally distributed over the whole world, but the greatest number of attractive species are to be found at the Cape of Good Hope, and South America. Two species are natives of this country.

INTRODUCTION; WHERE GROWN; CULTURE. This plant appears to be of recent introduction. It is not more difficult to treat than other of the suffruticose species, and it may be propagated by cuttings in the usual way. It will thrive in any good garden soil.

Gerarde supposes the Latin name of this genus to be derived from the Hebrew, in which tongue it is called *Malluach*, from its saltiness (*Melach*, salt,) because the Mallow grows in salt places, among rubbish, &c., where saltpetre abounds. "I am persuaded," says he, "that the Latin word *Malva* comes from the Chaldee name *Malluach*, the *ch* being left out for the good sound's sake; so that in the *Malua* we should pronounce the *u* as a vowel, *Malua*, which comes near to the English word Mallow."—*French*, mauve.—*Italian*, Malva.

We are informed that a tree of the Mallow kind furnishes food to the Egyptians, and the Chinese also use Mallows in their food.

Job speaks of them as being eaten in times of famine.

"For want and famine they were solitary: fleeing into the wilderness in former time desolate and waste:
"Who cut up mallows by the bushes, and juniper-roots for their meat."—*Job*, chap. xxx. verses 3, 4.

From the above passage we learn that the mallow was used for food by those nomadic tribes who have always pitched their tents in the desert in preference to dwelling in fixed habitations, where it would have been their duty to cultivate the earth in order to multiply the benefits of nature.

This plant was also eaten, boiled by the Greeks and Romans, and in salads, with lettuce and other vegetables.

Horace mentions it as one of his ordinary dishes:—

—————"me pascunt olive,
Me cichorea, levesque malvæ."

"Olives, succory, and light mallows are my food."

He commends them also as being very salutary:—

“*Malvæ salubres corpori.*”

It grows, naturally, by the rivulet’s side, and is of easy culture. Its appearance is graceful and pleasing; and its rose-coloured flowers harmonize with its leaves and branches, the whole plant being covered with a silver-coloured silky down. It is equally agreeable to the sight as to the touch. Its flowers, its stalks, its leaves, and its roots, are all useful. We procure from them various juices, syrups, pastiles, and pastes, alike beneficial to health, and agreeable to the palate.

A kind of paste, called by the French name of *pâte de mauve*, was of late prepared from the root, which is thought to be efficacious in allaying the irritation produced by violent coughing; but at present the Mallow is omitted, that the composition may have a fine white colour; it is, therefore, now made only of the finest white gum-arabic, the white of eggs, sugar, and orange-flower water.

The Mallow was formerly planted, with some other flowers, the asphodel in particular, around the graves of departed friends. It was probably this circumstance which led to the following reflections, in the epitaph on Bion, by Mosehus:—

“Raise, raise the dirge, Muses of Sicily!
Alas! when mallows in the garden die,
Green parsley, or the crisp luxuriant dill,
They live again, and flower another year;
Put we, how great soc’er, or strong, or wise,
When once we die, sleep in the senseless earth,
A long, an endless, unawakeable sleep.”

HUNT’S FOLIAGE.

The common Mallow of this country must be familiar even to London readers; it is an amiable plant, generally to be found in spots neglected by mankind.

“The mallow purpling o’er the pleasant sides
Of pathways green.”

DR. BIDLAKE.

“We call,” says a delightful author, “upon the admirers of the good and beautiful to help us in ‘rescuing nature from obloquy.’ All you that are lovers of nature in books,—lovers of music, painting, and poetry,—lovers of sweet sounds, and odours, and colours, and all the eloquent and happy face of the rural world with its eyes of sunshine,—you, that are lovers of your species, of youth, and health, and old age,—of manly strength in the manly, of nymph-like graces in the female,—of air, of exercise, of happy currents in your veins,—of the light in great nature’s picture,—of all the gentle spiriting, the loveliness, the luxury, that now stands under the smile of heaven, silent and solitary as your fellow-creatures have left it,—go forth on May-day, or on the earliest fine May morning, if that be not fine, and pluck your flowers and your green boughs to adorn your rooms with, and to show that you do not live in vain. These April rains (for May has not yet come, according to the old style, which is the proper one of our climate,) these April rains are fetching forth the full luxury of the trees and hedges;—by the next sunshine, all ‘the green weather,’ as a little gladsome child called it, will have come again; the hedges will be so many thick verdant walls, the fields mossy carpets, the trees clothed to their finger-tips with foliage, the birds saturating the woods with song. Come forth, come forth.”

This was the great rural festival of our forefathers. Their hearts responded merrily to the cheerfulness of the season. At the dawn of May morning the lads and lasses left their towns and villages, and repairing to the woodlands by sound of music, they gathered the *May*, or blossomed branches of the trees, and bound them with wreaths of flowers; then returning to their homes by sunrise, they decorated the lattices and doors with the sweet-smelling spoil of their joyous journey, and spent the remaining hours in sports and pastimes.

In the language of Flowers, the Mallow is the emblem of a mild or sweet disposition.



Begonia Dregii

BEGONIA DREGII.—DREGE'S BEGONIA.

CLASS XXI. MONŒCIA.—ORDER V. POLYANDRIA.

NATURAL ORDER, BEGONIACEÆ.

FLOWERS monœcious or dioecious. Perianth petaloid, segments generally unequal. *Male Flowers.* Segments of the Perianth 2-4, rarely 6-9, nearly round, the smaller ones often spatulate. Stamina indefinite; filaments more or less united, inserted into the receptacle; anthers erect, connective clavate, somewhat flattened. Pistil wanting. *Female Flowers.* Segments on the Perianth 4-6. Stamina wanting. Styles 3, dilated upwards, undulate. Stigmata stretched along the terminal margin of the styles. Germen inferior, 3-sided, winged, 3-celled. Ovules numerous.

Whole Plant glabrous. Root tuberous, tuber flattened. Stem (in the specimen described, six inches high) erect, succulent, glabrous, pale red, faintly streaked with greenish white oblong spots, many rising from the crown of the root, branched. Leaves ($1\frac{1}{2}$ inch long, 2 inches across) petioled, oblique, transversely elliptico-rhomboid, subpetate, 5-9-nerved, glabrous on both sides, green, with unequal silvery spots above, red below, darker on the nerves and their branches, doubly crenate; petioles spreading horizontally, twice as long as the leaves, having a shallow channel on the upper side. Stipules large, obliquely-ovate, colourless, reflected in the sides, marcescent. Peduncles axillary, about as long as the petioles, spreading, having at the apex two opposite bracts, similar to the stipules, but rather smaller, more round, and somewhat unequal. Flowers (1 inch across) white, two arising between the bracts, one male, the other female, pedicellate, expanding about the same time; pedicels unequal, that of the male flower the longer, and nearly equal to the length of the peduncle. Male Flower dipetalous, the petals subrotund, flat, slightly unequal. Stamens united by the filaments only at the base; connective short, broad, the two anther cells forming lines along its edges, and of rather paler yellow than it. Female Flower 6-petalous, petals undulate blunt, elliptical, two opposite narrower than the others which are sub-equal, style broad, fan-shaped, undulate, revolute and twisted, having along the terminal edge the villous stigmata, which are of darker yellow than the styles; germen with two sub-equal bluntly pointed wings, which are larger than the third more rounded one.

POPULAR AND GEOGRAPHICAL NOTICE. The very extensive genus *Begonia* was at one time considered entirely tropical, and it does abound especially on the eastern side of tropical South America, and the south and south eastern parts of India. It has been long known, however, that it extends beyond the northern edge of the tropic, in the east of Asia, reaching as high up as Japan. More lately several species have been found in Nepal, but this is less remarkable, as the hot valleys of that country furnish almost a tropical vegetation. I am not aware that any species has been found in America, to the northward of the tropic, though several are found in Mexico. Very few species have been found to the eastward of the Andes, and the species now figured is, I believe, the first which has been detected on the continent of Africa, and in the southern hemisphere the first any where beyond the tropic. It was discovered by Dregé, but I do not know at what distance from the Cape of Good Hope. There is difficulty in finding analogous forms to the begoniaceæ in any other natural order, and diversity of opinion hence arises among botanists as to their true position.

INTRODUCTION; WHERE GROWN; CULTURE. Seeds of this plant were obtained at the Botanic Garden, Edinburgh, from M. Otto, Berlin, in April, 1840, with the M. S. name here adopted, but without any account of its native country, but I have since learned from M. Klotzsch that seeds and dried specimens were transmitted from the Cape of Good Hope to the Botanic Garden at Berlin, by M. Dregé. The seedling plants flowered abundantly with us in September* while in the hotbed where they were raised, and already have formed tubers as large as small oranges. They have received no particular treatment, and it does not appear that there will be any difficulty in preserving them in moderate heat.

DERIVATION OF THE NAMES. *Begonia*, in honour of Begon a French Patron of Botany. *Dregii* in honour of M. Dregé, to whom we are indebted for this interesting addition to our collections, and to the flora of Africa.

A delightful writer observes, that "the name of June, and indeed that of May, gave rise to various etymologies; but the most probable one derives it from Juno, in honour of whom a festival was celebrated at the beginning of the month." He says, "It is now complete summer:—

'Summer is yeomen in,
Loud sing cuckoo;
Groweth seed,
And bloweth mead,
And springeth the weed new.

* At Cambridge.

"Thus sings the oldest English song extant, in a measure which is its own music.—The temperature of the air, however, is still mild, and in our climate sometimes too chilly; but when the season is fine, this is, perhaps, the most delightful month of the year. The hopes of spring are realized, yet the enjoyment is but commenced: we have all summer before us; the cuckoo's two notes are now at what may be called their ripest,—deep and loud; so is the hum of the bee; little clouds lie in lumps of silver about the sky, and sometimes fall to complete the growth of the herbage; yet we may now lie down on the grass, or the flowering banks, to read or write; the grass-hoppers click about us in the warming verdure; and the fields and hedges are in full blossom with the clover, the still more exquisite bean, the pea, the blue and yellow nightshade, the fox-glove, the mallow, white briony, wild honeysuckle, and the flower of the hip or wild rose, which blushes through all the gradations of delicate red and white. The leaves of the hip, especially the young ones, are as beautiful as those of any garden rose. Towards evening, the bat and the owl venture forth, flitting through the glimmering quiet; and at night, the moon looks silveriest, the sky at once darkest and clearest; and when the nightingale, as well as the other birds have done singing, you may hear the undried brooks of the spring running and panting through their leafy channels. 'It ceased,' says the poet, speaking of a sound of heavenly voices about a ship,—

It ceased; yet still the sails made on
A pleasant noise till noon,
A noise like of a hidden brook,
In the leafy month of June,
That to the sleeping woods all night
Singeth a quiet tune.——*Coleridge.*

"There is a greater accession of flowers, in this month than in any other. In addition to those of the last, the garden sparkles with marygolds, golden-rod, larkspur, sun-flowers, amaranths, (which Milton intermingles with sun-beams for his angel's hair,) lupins, carnations, Chinese pinks, holyhocks, ladies' slipper, annual stocks, campanulas, or little bells, martagons, periwinkles, wall-flower, snapdragon, orchis, nasturtium, apocynum, chrysanthemum, cornflower, gladiolus, and convolvulus. The reader who is fond of poetry, and of the Greek fables, and does not happen to be acquainted with professor Martyn's notes upon Virgil, should here be informed, that the species of red lily, called the martagon or Turk's-cap, has been proved by that writer, at least to our satisfaction, to be the real ancient hyacinth, into which the youth of that name was turned by Apollo. The hyacinth, commonly so called, has nothing to show for its being the ancient one, which should be of a blood colour, and was said to be inscribed with the Greek exclamation of sorrow *AI, AI*. Now we were struck with the sort of literal black marks with which the Turk's-cap is speckled, and on reading the professor's notes, and turning to the flower again, we could plainly see, that with some allowance, quite pardonable in a superstition, the marks might now and then fall together, so as to indicate those characters. It is a most beautiful, glowing flower; and shoots gracefully forth in a vase or glass from among white lilies, and the double narcissus:—

'Now tell your story, Hyacinth! and show *Ai Ai* the more amidst your sanguine woe.'

A celebrated modern writer says, "take care of the *minutes*, and the *hours* will take care of themselves." This is an admirable remark, and might be very seasonably recollected when we begin to be "weary in well-doing," from the thought of having much to do. The present moment is all we have to do with in any sense; the past is irrecoverable; the future is uncertain; nor is it fair to burthen one moment with the weight of the next. Sufficient unto the *moment* is the trouble thereof. If we had to walk a hundred miles, we should still have to set but one step at a time, and this process continued would infallibly bring us to our journey's end. Fatigue generally begins, and is always increased, by calculating in a minute the exertion of hours.

Thus, in looking forward to future life, let us recollect that we have not to sustain all its toil, to endure all its sufferings, or encounter all its crosses at once. One moment comes laden with its own *little* burthens, then flies, and is succeeded by another no heavier than the last; if *one* could be borne, so can another, and another.

Even in looking forward to a single day, the spirit may sometimes faint from an anticipation of the duties, the labours, the trials to temper and patience that may be expected. Now this is unjustly laying the burthen of many thousand moments upon *one*. Let any one resolve always to do right *now*, leaving *then* to do as it can; and if he were to live to the age of Methusalem, he would never do wrong. But the common error is to resolve to act right after breakfast, or after dinner, or to-morrow morning, or *next time*; but *now just now, this once*, we must go on the same as ever.

We are indebted for the description to that charming work "the Botanist."

Fucus



Helminthocorton?

vesiculosus

FUCUS VESICULOSUS.—BLADDER FUCUS. BLADDER-WRACK.

CLASS XXIV. CRYPTOGRAMIA.—ORDER III. ALGÆ.

NATURAL ORDER, ALGÆ.—THE SEA-WEED TRIBE.

Fig. (a) part of the outside of a receptacle magnified; (b) horizontal section of a receptacle; (c) tubercle; (d) spores; (e) contents of a spore; (f) some of the same; (g) longitudinal section of a vesicle.

UNDER the term Fuci are comprehended a tribe of plants, commonly included with the Ulvæ and marine Confervæ, under the more general tide of submerged Algæ, or Thalassiophyta, and well known in this country by the popular name of Sea-weeds. In Scotland the name Wrack, (probably from the French *varec*;) is often applied to those fuci, which are cut on the shores for the manufacture of kelp.

The economical uses of sea-weeds are numerous and important. To the agriculturist they furnish a valuable manure. To the glass-maker and soap-boiler they yield the fixed alkali, and the manufacture of kelp for this purpose became a valuable source of revenue to the proprietors of the rocky shores of Europe, particularly of Britain, and more especially of those of the Northern and Western Islands of Scotland, during the late war. From the ashes of the fuci the chemist has derived the very curious elementary substance named *Iodine*. Several of them are so rich in saccharine matter and vegetable mucilage, that on the shores of the northern countries of Europe, and the Scottish islands, much of the winter provender of cattle is derived from them. A few of them also afford food to man; some of the smaller sorts are used as condiments; while others are employed as medicines.

The *Fucus vesiculosus* is a perennial plant, growing everywhere on the British shores, on rocks and stones, or cast upon the beach; bearing its fructification in the spring. The root is an expanded, black, woody, callous disc. The frond is smooth and glossy, flat, winged, from one to four feet long, and from $\frac{1}{2}$ in. to $1\frac{1}{2}$ in. wide, linear, forked near the root, and afterwards repeatedly dichotomous, of a dark olive-green colour, becoming paler near the apices, and when dry black and dull. All the branches are nearly of equal height, with the apices rounded, and not unfrequently notched; the margins entire. The substance of the frond is coriaceous, flexible and tough, but brittle after it is dried; and through its whole length furnished with a midrib of a blackish colour, and as thick as a goose-quill, but gradually growing pale and thin. In the membranous part of the frond throughout its whole length are found immersed spherical vesicles, varying in size from a pea to a hazel-nut, externally smooth, and containing in their cavity a quantity of air. Besides these, particularly in the spring, almost always near the apices, are often observable elliptical swellings of a pale yellowish green colour, an inch or two in length, and sometimes occupying the midrib, so that the whole becomes inflated and nearly cylindrical. The fructification consists of compressed, turgid receptacles, solitary or twin, placed at the ends of the branches, varying in form, but mostly elliptical, from one-fourth of an inch to two inches long, and perforated with very minute pores, under which lie imbedded spherical tubercles, composed of short jointed fibres, mixed with seeds of an elliptical form, surrounded with a pellucid limbus, and appearing under a powerful microscope to contain six or seven roundish grains: the centre of the receptacle is filled with a colourless and tasteless mucus, through which passes a network of anastomosing fibres. The varieties α . β . γ . and δ . are found upon the shores of the British isles, and of all the north of Europe, plentifully.

In Scotland this is sometimes called *Black Tang*; sometimes *Kelp-ware*, and when the receptacles are large and swollen, *Strawberry-ware*. The Norwegians call it *Kue-tang*. It is the *Quercus marina* or *Sea Oak* of the older writers.

QUALITIES AND CHEMICAL PROPERTIES.—The most important uses to which *Fucus vesiculosus* is applied is in the manufacture of *Kelp*, which is a very impure carbonate of soda, containing sulphate and chloride of sodium, with a portion of charcoal; and is manufactured in Scotland chiefly in the months of July and August.

Its medical virtues have been much celebrated by Dr. Russell in his Dissertation concerning the uses of Sea-water in the Diseases of the Glands. He found the saponaceous liquor or mucus in the vesicles of the plant to be an excellent resolvent, and useful in dispersing scrofulous swellings. He recommends the patient to rub the tumour with these vesicles bruised in the hand, and afterwards to wash the part with sea-water.

Iodine, as already hinted, is also yielded by kelp. Its name being derived from *ἰώδης*, *violaceous*, in allusion to the very striking circumstance of its yielding a violet-coloured gas on being exposed to an increase of temperature. It was first discovered accidentally by M. Courtois, of Paris, and its properties have been since accurately examined by Clement and Desormes, Gay Lussac, Sir H. Davy, Vauquelin, and Wol-

laston. The latter was the first who gave a regular formula for extracting it; he dissolved the soluble part of kelp in water, and after evaporating it as long as it continued to afford crystals, he added a little more sulphuric acid to the remaining liquid than was necessary to neutralize the free soda which it contained, and after all action had ceased, he added as much black oxide of manganese to the clear liquor which remained, and on the application of heat, iodine was disengaged. The soap manufacturers obtain their principal supply of soda from kelp; and Dr. Ure found, that a very large quantity of iodine may be obtained from the brown oily liquid which remains after most of the soda has been abstracted from the kelp-ley. A basin is filled about one-half with this liquid, after it has been heated to 230°, and for every eight ounces about one ounce of sulphuric acid is added, previously diluted with its own bulk of water; a violent effervescence immediately ensues: sulphur is deposited, while sulphureted hydrogen, sulphurous, carbonic, and muriatic acids are disengaged; and on cooling, crystals are deposited, consisting principally of sulphate of soda. The liquid is filtered, put into a glass retort, and to every twelve ounces, one thousand grains of the black oxide of manganese are to be added; heat is now to be applied, and the iodine rises in a rich purple vapour, which condenses in crystalline plates. It is collected by adapting a receiver to the retort, from which it is easily withdrawn by a little water.

Iodine is a solid substance of a bluish-black colour and metallic lustre. It is soft and friable, and is obtained generally in the form of small scales, sometimes in rhomboidal plates, and even in elongated octohedrons; it does not conduct electricity. It has a pungent odour, an acrid taste, and stains the skin of a deep brownish-yellow colour; when taken in considerable quantity, it acts as a strong poison.

Dr. Coindet, of Geneva, suspecting from analogy that *iodine* was the active principle in sponge, was induced to try it in those cases for which burnt sponge was administered, and his success in the treatment of bronchocele was very remarkable. It has been used by many practitioners both on the continent and in our own country, with undiminished reputation. Success is most commonly to be expected in recent cases, and when the patient is young; several instances have, however, occurred, in which old, hard, and very large goitres have yielded to this remedy; but in such instances as the course of treatment is protracted, it may have injurious effects on the stomach; to obviate which it has been the object to introduce the remedy by means of friction: and a case is recorded by Mr. Rickwood, where a patient was cured at the age of seventy years. Iodine has been likewise employed in the treatment of scrofula with equal success; and in the hands of M. M. Hufeland and Osan, the efficacy of the tincture of iodine, and hydriodate of potass has been fully proved; they have also employed the same preparations with advantage in scirrhus and cancer. Dr. Wagner speaks of its beneficial influence on a tumour situated in the neighbourhood of the jaw, which he considered cancerous.

Dr. Baron has employed it with some success in the treatment of scrofulous phthisis, and other tuberculous affections; and the late Mr. Haden also reports a case of phthisis supposed to have been cured by iodine. Cases are also recorded of its success in ovarian dropsy. The most sanguine will hardly venture to hold out Iodine or any other substance yet known, as a cure for those terrible scourges of the human race, cancer, and phthisis, such ill judged promises only foster empiricism, but in scrofula, in rheumatism, and some kinds of gout, and especially where the constitution has been undermined either by mercury, or by any of the complaints for which that mineral has been given, Iodine is a powerful remedy, and one of the most important acquisitions of modern science.

The value of iodine as a remedial agent in a vast variety of important diseases, does not rest on the testimony of one or two individuals only; but its employment is established through the concurrent testimonies of many eminent men in different countries.

If iodine be taken in doses too large, or be not properly watched as to its effects, it is apt to produce inflammation of the stomach, attended by nausea, incessant vomiting, and general emaciation.

These facts, however important to be known, do not in the least militate against the judicious employment of a remedy, so justly valued by every scientific physician.

FUCUS (*vel* GIGARTINA.) HEMINTHOCORTON.

Corsican Worm-moss.

THIS small species is found growing in the Mediterranean sea, on the coast of Corsica, attached to calcareous rocks and other marine bodies. The root is wholly composed of creeping fibres, variously branched and thickly interwoven. The fronds are very numerous, from the same base, clustered into compact, cushion-like tufts, some inches in width, an inch or an inch and half long, erect, straight, or slightly flexuose cylindrical, not thicker than hog's bristles, once or twice irregularly dichotomous at short intervals, with erecto-patent segments of nearly equal height, all remarkably acuminate.



Veronica Chamædrys.

VERONICA CHAMÆDRYS.—THE GERMANDER SPEEDWELL.

CLASS II. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SPIGELIACEÆ.—THE WORM-SEED TRIBE.

CLUSTERS many-flowered; leaves egg-shaped, sessile, deeply serrate; stem with two opposite rows of long white hairs.—Stems decumbent at the base, marked with two lines of long hairs, which change sides between each pair of leaves: leaves wrinkled and hairy, with large serratures: clusters long, shooting up beyond the stem: flowers large, bright blue, with deeper streaks, externally pale purple; capsule inversely heart-shaped. Perennial: flowers in May and June: grows on dry banks, under hedges, in open pastures and in woods; very common.

Most of the Veronicas are natives of cold countries, and consequently hardy: they may be increased by parting the roots in autumn; which in pots, should be done every year. The annual kinds may be sown in Autumn.

The Cross-leaved species requires shelter from frost; it is increased by cuttings made in any of the summer months. These plants prefer the shade, and must be kept moist.

The flowers are flesh-coloured, blue, or white. The Blue Rock Speedwell is a beautiful little plant, and is a native of Switzerland, Austria, Denmark, Norway, and Scotland. It is by some, familiarly called Forget-me-not; a name given also to the ground pine, a species of germander: but the true Forget-me-not is the water mouse-ear, the *Myosotis palustris* of the botanists.

It is a lovely little flower, varying in size according to soil and situation; sometimes its diameter is about the third of an inch, and in some places the flowers are so small, that it is not easy to find them. Gerard describes it as a species of the *Euphrasia* or Eyebright. The flower described by Spenser in the following lines, to which he gives the name of *Astrophel*, in compliment to Sir Philip Sidney, whose death he laments, exactly answers to this beautiful little wild-flower.

"The gods, which all things see, this same beheld,
And pitying this pair of lovers true,
Transformed them there lying on the field,
Into one flower that is both red and blue:
It first grows red, and then to blue doth fade,
Like *astrophel* which thereinto was made.

And in the midst thereof a star appears,
As fairly formed as any star in skies;
Resembling *Stella* in her freshest years,
Forth darting beams of beauty from her eyes;
And all the day it standeth full of dew,
Which is the tears that from her eyes did flow.

That herb of some starlight is called by name,
Of others *penthia*, though not so well;
But thou, wherever thou dost find the same,
From this day forth do call it *astrophel*:
And whensoever thou it up dost take,
Do pluck it softly, for that shepherd's sake."

The Germander Speedwell is a native of Europe and Japan. "Few of our wild flowers," says Mr. Martyn, "can vie in elegance and brilliancy with this: and many plants with far less beauty are cultivated in our gardens. In May and June every hedge-bottom and grassy bank is adorned with it. At night, or under the influence of moisture, the corolla closes, but in dry bright weather appears fully expanded; and though each flower is short lived, there is a copious succession."

Dr. Withering says the leaves are an excellent substitute for tea. The Common-Speedwell has been much recommended for this purpose, especially in Germany and Sweden; and the French still call it the *Thé de l'Europe*.

The leaves of some of the species are eaten in salad, or as water-cresses.

In July we have full summer. The "Mirror of the Months" presents its various influences on the open face of nature. "The rye is yellow, and almost ripe for the sickle. The wheat and barley are of a dull green, from their swelling ears being alone visible, as they bow before every breeze that blows over them. The oats are whitening apace, and quiver, each individual grain on its light stem, as they hang like rain-drops in the air. Looked on separately, and at a distance, these three now wear a somewhat dull and monotonous hue, when growing in great spaces; but these will be intersected, in all directions, by patches

of the brilliant emerald which now begins to spring afresh on the late-mown meadows; by the golden yellow of the rye, in some cases cut, and standing in sheaves; by the rich dark green of the turnip-fields; and still more brilliantly by sweeps, here and there, of the bright yellow charlock, and scarlet corn-poppay, and the blue succory, which, like perverse beauties, scatter the stray gifts of their charms in proportion as the soil cannot afford to support the expences attendant on them."

On the high downs, "all the little molehills are purple with the flowers of the wild thyme, which exhales its rich aromatic odour as you press it with your feet; and among it the elegant blue heath-bell is nodding its half-dependent head from its almost invisible stem,—its perpetual motion, at the slightest breath of air, giving it the look of a living thing hovering on invisible wings just above the ground. Every here and there, too, we meet with little patches of dark green heaths, hung all over with their clusters of exquisitely wrought filigree flowers, endless in the variety of their forms, but all of the most curiously delicate fabric, and all, in their minute beauty, unparalleled by the proudest occupiers of the parterre. This is the singular family of plants that, when cultivated in pots, and trained to form heads on separate stems, give one the idea of the forest trees of a Lilliputian people." Here, too, are the "innumerable little thread-like spikes that now rise from out the level turf, with scarcely perceptible seed heads at top, and keep the otherwise dead flat perpetually alive, by bending and twinkling beneath the sun and breeze."

In the green lanes "we shall find the ground beneath our feet, the hedges that enclose us on either side, and the dry banks and damp ditches beneath them, clothed in a beautiful variety of flowers that we have not yet had an opportunity of noticing. In the hedge-rows which are now grown into impervious walls of many-coloured and many-shaped leaves, from the fine filigree-work of the white-thorn, to the large, coarse, round leaves of the hazel) we shall find the most remarkable of these, winding up intricately among the crowded branches, and shooting out their flowers here and there, among other leaves than their own, or hanging themselves into festoons and fringes on the outside, by unseen tendrils. Most conspicuous among the first of these is the great bind-weed, thrusting out its elegantly-formed snow-white flowers, but carefully concealing its leaves and stem in the thick of the shrubs which yield it support. Nearer to the ground, and more exposed, we shall meet with a handsome relative of the above, the common red and white wild convolvulus; while all along the face of the hedge, clinging to it lightly, the various coloured vetches, and the enchanter's night-shade, hang their flowers into the open air; the first exquisitely fashioned, with wings like the pea, only smaller; and the other elaborate in its construction and even beautiful, with its rich purple petals turned back to expose a centre of deep yellow; but still, with all its beauty, not without a strange and sinister look, which at once points it out as a poison-flower. It is this which afterwards turns to those bunches of scarlet berries which hang so temptingly in autumn, just within the reach of little children, and which it requires all the eloquence of their grandmothers to prevent them from tasting. In the midst of these, and above them all, the woodbine now hangs out its flowers more profusely than ever, and rivals in sweetness all the other field scents of this month.

"On the bank from which the hedge-row rises, and on *this* side of the now nearly dry water-channel beneath, fringing the border of the green path on which we are walking, a most rich variety of field-flowers will also now be found. We dare not stay to notice the half of them, because their beauties, though even more exquisite than those hitherto described, are of that unobtrusive nature that you must stoop to pick them up, and must come to an actual commune with them, before they can be even seen distinctly; which is more than our desultory and fugitive gaze will permit,—the plan of our walk only allowing us to pay the passing homage of a word to those objects that *will* not be overlooked. Many of the exquisite little flowers, now alluded to generally, look, as they lie among their low leaves, only like minute morsels of many-coloured glass scattered upon the green ground—scarlet, and sapphire, and rose, and purple, and white, and azure, and golden. But pick them up, and bring them towards the eye, and you will find them pencilled with a thousand dainty devices, and elaborated into the most exquisite forms and fancies, fit to be strung into necklaces for fairy Titania, or set in brooches and bracelets for the neatest-handed of her nymphs.

"But there are many others that come into bloom this month, some of which we cannot pass unnoticed if we would. Conspicuous among them are the centauray, with its elegant cluster of small, pink, star-like flowers; the ladies' bed-straw, with its rich yellow tufts; the meadow-sweet—sweetest of all the sweeteners of the meadows; the wood betony, lifting up its handsome head of rose-coloured blossoms; and, still in full perfection, and towering up from among the low groundlings that usually surround it, the stately fox-glove."



Prunus Lauro-cerasus

PRUNUS LAURO-CERASUS.—THE CHERRY LAUREL.

CLASS XII. ICOSANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, AMYGDALÆÆ.—THE ALMOND TRIBE.

Fig. (a) represents a section of a flower, showing the position of the stamens; (b) the germen and style; (c) the fruit; (d) a drupe cut across, to show the nut or stone.

THE cherry-laurel is a native of the Levant, and was cultivated in Britain as early as 1629; but the precise period of its introduction is uncertain. It is a hardy evergreen shrub, or small tree, and is planted near houses, and in shrubberies, as an ornamental plant, producing its elegant spikes of odorous white blossoms early in May. We may remark, that it is frequently mistaken for the bay, and is erroneously regarded as the plant which furnished crowns for the Roman heroes. There is no doubt, however, that it was the sweet-bay (*Laurus nobilis*), which furnished the wreath worn on the brow of the victor, and of the priestess of Delphi. The mistake is supposed to have arisen from the bay, which is a true laurus, having formerly been called laurel, and the fruit of it only named *bayes*, while in modern times the cherry-laurel has usurped its name.

The cherry-laurel attains the ordinary stature of a plum or cherry-tree, sending off long spreading branches, covered with a smooth brown bark. The leaves are alternate, and stand upon short foot-stalks; they are elliptical or obovate, tapering towards the base, pointed and curved at the apex, minutely toothed, smooth, and polished with a prominent midrib, and of a deep green colour. At their base, underneath, are two small yellow glands. The flowers are in spikes, on short, simple, axillary peduncles. The calyx is inferior, bell-shaped, and divided at the brim into five obtuse segments. The corolla consists of five small white concave, roundish, spreading segments. The filaments, which are alternately long and short, are about eighteen, awl-shaped, inserted into the calyx, and furnished with roundish yellow anthers. Before the petals unfold, the stamens are inflexed, and the anthers disposed in a circular form within the rim of the calyx, as is well represented on the plate (fig. a). The germen is roundish, supporting a columnar style, and terminated by an orbicular stigma. The fruit, or drupe, is globular, of a shining black colour, and resembling a small cherry, both in its external appearance and internal structure.

The plum, the cherry, and the cherry-laurel, all included by Linnaeus in his genus *Prunus* were considered generically distinct by the older botanists; and in modern times they are again admitted as subgenera, even by those who deny their differences to be sufficient to constitute generic characters.

The Pruni are easily distinguished from the Cerasi and Lauro-cerasi by the fruit being *pruinose* or covered with a resinous excretion called *bloom*, while in both the latter the drupes are glaucous; but in the *Cerasi* or true cherries, the inflorescence is in tufts or *sertula*, while in the *Lauro-cerasi* it is in racemes: the distinction is important, because it is in the latter group that prussic acid is the most abundant.

POISONOUS EFFECTS.—The Distilled water of this plant, the virtues of which depend on the prussic acid that it contains, is a deadly poison. When applied to wounds in animals it induces vomiting, convulsions, great prostration of strength, diminished sensibility, and death. Its action has been found most rapid and intense when injected into the jugular vein.

Many cases are on record of its effects on man; the earliest with which we are acquainted, are contained in the 37th vol. of the Phil. Trans., in a paper communicated by Dr. Madden of Dublin, part of which we give. "A very extraordinary accident that fell out here some months ago, has discovered to us a most dangerous poison, which was never before known to be so, though it has been in frequent use among us. The thing I mean is a simple water, distilled from the leaves of the *Lauro-cerasus*. The water is, at first, of a milky colour, but the oil which comes over with it, being in a good measure separated from the phlegm; by passing it through a flannel-bag, it becomes as clear as common water. 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 that 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 the 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 Boyse, a servant, who lived with a person that sold great quantities of this water, got a bottle of it from her mistress, and gave it to her mother, Anne Boyse, as a very rich cordial.

"Anne Boyse 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 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, and in about a quarter of an hour after she had drank the water, she complained of a violent disorder in her stomach. She was carried home, and from that time she lost her spirits and died in about an hour, without vomiting, or any convulsion.

"The shopkeeper, Frances Eaton, sent word to her sister, Anne Boyse, of what had happened, who came to her and affirmed that it was not possible that the cordial, as she called it, could have occasioned the death of the woman; and to convince her of it, she filled out about three spoonsful and drank it. She continued talking with Frances Eaton about two minutes longer, and was so earnest to persuade her of the liquor being inoffensive, that she poured out two spoonsful more, and drank it off likewise. She was hardly well seated in her chair, when she died, without the least groan or convulsion. Frances Eaton, who had drank somewhat above a spoonful, found no disorder in her stomach or elsewhere; but to prevent any ill consequences, she took a vomit, and has been well ever since.

Mary Whaley was buried without being examined by any one that I can find, except the coroner. I went to see Anne Boyse about twenty-four hours after her death, but could not prevail to have her opened. She was about sixty years old; her countenance and skin appeared well coloured, and her features were hardly altered, so that she looked as one asleep. Her belly was not swelled, nor had she any other external mark of poison.

"This accident brought into discourse another of the like nature, which happened about four years since in the town of Kilkenny. A young gentleman, son to Alderman Evans, mistook a bottle of laurel-water for one of pisan. What quantity he drank is uncertain, but he died in a few minutes, complaining of a violent disorder in his stomach. The affair was not much regarded at that time, because he laboured under a distemper, to which, or to an improper use of remedies, his death was attributed by those about him."

Then follow Dr. Madden's experiments on animals; and the same volume contains also a narration of Dr. Mortimer's.

Foderé states, that "when he was attending his studies at Turin, in 1784, the chambermaid and man servant of a noble family of that town, stole, for the purpose of regaling themselves, a bottle of distilled laurel-water, which they mistook for an excellent cordial. Fearful of being surprised, they hastily swallowed, one after the other, several mouthfuls of it: but they soon paid a fearful price for their dishonesty, as they expired almost instantly in convulsions. The dead bodies were carried to the university for examination. The stomach was found highly inflamed, but the rest of the organs were in a sound state."

A very interesting trial took place during the last century, from a supposition (well grounded we conceive) that the distilled laurel-water had been administered. As it is often referred to by medico-legal writers, we think it right to give the account, which, with some remarks of Professor Beck, are quoted from his valuable work on Medical Jurisprudence; the pamphlet, containing an account of the trial, taken in shorthand by Mr. Gurney, being so scarce that we are unable to obtain it.

"Sir Theodosius Boughton was a young gentleman of fortune in the county of Warwick, and nearly arrived at the age of twenty-one. His mother and his brother-in-law, Captain Donellan, and his sister, (Mrs. Donellan), resided with him. In the event of his dying before the period of his majority, the greatest part of his fortune descended to his sister, and Captain Donellan would thus become entitled to a life-estate in it. Sir Theodosius was labouring under a slight affection, for which he was attended by Mr. Powell, of Rugby. His general health was, however stated to have been good. On the 29th of August, 1780, Mr. Powell sent him a draught to be taken on the next morning. The bottle containing this was placed on a shelf in his bed-room. He returned in the afternoon of this day from fishing, in good health and spirits. In the morning, a servant awoke him at an early hour, for the purpose of obtaining some straps for a net. He arose, and went into the next room for them. Even now he appeared in perfect health. About seven A. M. Lady Boughton got up and went into his room, as he had before desired her, to give him the medicine. He desired her to reach down the draught which was labelled "purging Draught for Sir T. B.," and she poured it into a cup. He had not, however, swallowed more than half of it, when he complained that it was so nauseous to the taste, and disagreeable to the smell, that he did not apprehend he should be able to keep it on his stomach. This remark induced Lady Boughton to smell the draught. She found it very peculiar in this respect, and observed to him that it smelt very strongly of bitter almonds. He ate some cheese in order to take the taste out of his mouth, and afterwards washed his mouth with some water. In about two minutes after swallowing the draught, he appeared to struggle very much, as if to keep it down, and had a rattling and guggling in his stomach. These symptoms continued about ten minutes, when he seemed to Lady Boughton to be inclined to go to sleep, and she left the room. She returned again in about five minutes, and was surprised to find him with his eyes fixed upwards, his teeth clenched, and froth running out of his mouth. He died in about half-an-hour afterwards, never having spoken since he took the draught. Captain Donellan was tried and executed for the murder, on the presumption that he had put laurel water into the draught: recent cases have cleared up much of the mystery which hangs over all those which we have quoted.





Polygonum Bistorta.

POLYGONUM BISTORTA.—GREAT BISTORT, OR SNAKE WEED.

CLASS VIII. OCTANDRIA.—ORDER III. TRIGYNIA.

NATURAL ORDER, POLYGOŒ.—THE BACK-WHEAT TRIBE.

Fig. (a) represents a perfect flower magnified; (b) the germen and styles.

BISTORT is an indigenous perennial plant, growing abundantly in many parts of Britain, particularly in the northern counties, where it frequently proves a very troublesome weed. We found it in large patches in the meadows at Battersea, and also on the north side of Bishop's Wood near Hampstead, where it is said to have grown for more than a half a century. It flowers in May and June.

The root is creeping, woody, and generally more or less bent and crooked; it is about the thickness of a finger, surrounded with slender fibres, of a brownish black color on the outside, and reddish within. The stem is solitary, simple, erect, about a foot or eighteen inches in height, round, swelling at the joints, striated and smooth. The leaves are entire, ovate, smooth, somewhat flexuose, of a bright green colour, and glaucous beneath; the radical ones are somewhat cordate, pointed, and stand upon long winged, or rather decurrent footstalks; those of the stem are almost sessile, amplexicaule, having tubular, sheathing foot-stalks, each furnished with membranous stipulæ or ochreæ. The flowers terminate the stem in a close cylindrical spike, about two inches in length; each of them stands single on very short slender stalks, with membranous, notched, brown bracteas at the base. The calyx is generally rose-coloured, and deeply divided into five obtuse segments; the stamens are eight, tapering, longer than the calyx, and supporting purple anthers; the germen is triangular, bearing three distinct styles, with small obtuse stigmas. The nuts are triangular, black, and shining, each containing a single seed.

According to Professor Alston, the name of this plant, Bistorte, *quasi bis torta*, twice twisted or wreathed, is of modern date; for it was formerly termed *Serpentaria*, *Colubrina*, and *Dracunculus*, Hoffman remarking, "*Radix est serpentis modo intorta.*" The generic name *Polygonum*, is adopted from Dioscorides, whose *πολύγωνον ἀρ' ἔφη*, or male polygonum, is regarded as our *P. aviculare*, or common knot-grass.

QUALITIES.—The root of Bistort, the part used in medicine, is inodorous; but to the taste very astringent. It gives out its virtues to water, and "turns a solution of green vitriol to ink."

P. Bistorta is one of the more powerful vegetable astringents; its root contains tannin and gallic acid in abundance, so that it is not only very useful in cases of diarrhœa and other fluxes, but might also be employed in the tanning of leather, being equivalent it is said to double the quantity of oak-bark. The roots abound in fecula, which, when the tan is separated, may be used as food; bread is made of it, as well as of *P. Sibericum*, in Russia. Scheele discovered oxalic acid in this plant. Its seeds are commonly fed upon by birds, and do well to fatten poultry. The young shoots of bistort, called 'Easter-giant,' were formerly eaten in the north of England in the provincial 'herb-puddings,' and in the neighbourhood of Manchester they are still brought to table as greens, under the name of Patience Dock.

MEDICAL PROPERTIES AND USES.—Bistort is really a very powerful astringent, and appears to be neglected merely because it grows in almost every meadow. The powdered root, in doses of a drachm, will be found useful in hæmorrhage, diarrhœa, and chronic dysentery; and, combined with bitters, has been recommended for the cure of intermittent fever, by Dr. Cullen. By the following quotation from Gerarde it will be seen, that its virtues were much better appreciated in former times: he says, "The iuyce of Bistort, put into the nose, preuaileth much againste the disease callen Polypus The root boyled in wine, and drunke, stayeth vomiting, and healeth the inflammation and sorenesses of the mouth and throat; it likewites fastneth loose teeth, being holden in the mouthe for a certain space, and at sundry times."

"The number of flowers is now sensibly diminished. Those that flower newly are nigella, zinnias, polyanthus, love-apples, mignonette, Michaelmas daisies, auriculas, asters, or stars, and China-asters. The additional trees and shrubs in flower are the tamarisk, altheas, Venetian sumach, pomegranates, the beautiful passion-flower, the trumpet-flower, and the virgin's bower, or clematis, which is such a quick and handsome climber. But the quantity of fruit is considerably multiplied, especially that of pears, peaches, apricots, and grapes. And if the little delicate wild flowers have at least withdrawn from the hot sun, the wastes, marshes, and woods are dressed in the luxuriant attire of ferns and heaths, with all their varieties of green, purple, and gold. A piece of waste land, especially where the ground is broken up into little inequalities, as Hampstead-heath, for instance, is now a most bright as well as picturesque object; all the ground, which is in light, giving the sun, as it were, gold for gold. Mignonette, intended to flower in the winter, should now be planted in pots, and have the benefit of a warm situation. Seedlings in pots should have the morning sunshine, and annuals in pots be frequently watered.

The garden blooms with vegetable gold,
And all Pomona in the orchard glows,
Her racy fruits now glory in the sun,
The wall enamour'd flower in saffron blows,
Gay annuals their spicy sweets unfold,
To cooling brooks the panting cattle run:
Hope, the forerunner of the farmer's gain,
Visits his dreams and multiplies the grain.

It may not be out of place here to notice that singular property of seeds by which they are preserved in the ground for ages. It appears from certain circumstances, that when they are buried below that particular depth at which they feel the influence of the atmosphere and consequently vegetate, they are in a state of preservation which may and does often continue for centuries---perhaps, for aught we know to the contrary, to the end of the world, if undisturbed; certainly, however, to an amazing extent of time. By this beautiful law of the all-wise Creator, the vegetable tribes are never likely to be lost. However cultivation or carelessness may tend to extirpate certain species, their seeds lie in myriads in the treasury of the earth, and some event such as we sometimes witness, the lowering of a hill, the cutting of a single turf, exposes them to the action of the air, and forth they spring. Thus it is that farmers are frequently surprized on ploughing up a field that has lain in lea beyond the memory of man, to see a plentiful crop of various and unusual plants spring up. So I have observed in Sherwood Forest, that where turf is pared, henbane is almost sure to exhibit itself, though none has been seen in the neighbourhood for years. Many instances of this kind have no doubt attracted the attention of all curious lovers of Nature.

Says Howitt, "I must not omit to notice the splendid appearance of the HARVEST MOON. The circumstance of this moon rising several nights successively almost at the same time, immediately after sunset, has given it an importance in the eyes of the farmers; but it is not the less remarkable for its singular and splendid beauty. No moon during the year can bear any comparison with it. At its rising it has a character so peculiarly its own, that the more a person is accustomed to expect and to observe it, the more it strikes him with astonishment. I would advise every one who can go out in the country, to make a practice of watching for its rising. The warmth and the dryness of the earth, the clearness and balmy serenity of the atmosphere at that season, the sounds of voices borne from distant fields, the freshness which comes with the evening, combine to make the twilight walk delicious; and scarcely has the sun departed in the west, when the moon in the east rises from beyond some solitary hill, or from behind the dark rich foliage of trees, and sails up into the still and transparent air in the full magnificence of a world. It comes not as in common, a fair but flat disc on the face of the sky,—we behold it suspended in the crystal air in its greatness and rotundity; we perceive the distance beyond it as sensibly as that before it; and its apparent size is magnificent. In a short time, however, it has acquired a considerable altitude—its apparent bulk has diminished—its majestic grandeur has waned, and it sails on its way calmly beautiful, but in nothing differing from its usual character."





Pimelea intermedia.

PIMELEA INTERMEDIA.—INTERMEDIATE PIMELEA.

CLASS III. DIANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, BURSERIACEÆ.

CHARACTER OF THE GENUS PIMELEA. PERIANTH funnel-shaped, limb four-cleft, throat without scales. Stamens two, inserted into the throat, opposite to the outer segments. Style lateral. Stigma capitate. Nut with a hard external coat, rarely berried.

DESCRIPTION OF THE SPECIES, PIMELEA INTERMEDIA. Shrub slender, erect, with long, straight, almost filiform branches, which are covered with brownish-yellow, glabrous, cracked bark. Leaves (three-quarters of an inch long, about two lines broad) glaucous, glabrous on both sides, with a distinct mid-rib, but no conspicuous veins, linear-lanceolate, inclining to spatulate on the branches, becoming ovate and shorter towards the *capitulum*, which is many-flowered and terminal. Flowers white, longer than the involucre, which scarcely differs from the ordinary leaves of the plant. Perianth surrounded at its base with long erect hairs, tomentose on the outside, striated, dilated over the germen, and diaphanous between the striæ at this part; segments of the limb subequal, elliptical, with slightly involute edges. Stamens at first erect, afterwards reflexed on the limb, and shorter than it. Anthers oblong, pollen bright orange. Germen oblong, pale, green, glabrous. Style filiform, glabrous, longer than the perianth; stigma minute, capitate, bearded.

POPULAR AND GEOGRAPHICAL NOTICE. The genus *Pimelea* is widely distributed along the coasts of Australia and in Van Diemen's Land, and a few species are found in New Zealand. Many of them are very ornamental, and the more popular in cultivation on account of the facility of management of the greater number, and the profusion of flowers which they produce. The present species is native of King George's Sound.

INTRODUCTION; WHERE GROWN; CULTURE. I believe this plant was first raised at Mr Low's nursery, Clapton, from seed gathered by Mr. Baxter, its discoverer. In the arrangement of the species it must be placed in the section in which the floral leaves and those of the branches are subsimilar, and should stand next to *Pimelea sylvestris*. It is of slender growth, about two feet high, has not perfected seeds, but is easily propagated by cuttings, and grows readily in peat soil, mixed with sand, under the protection of the greenhouse.

DERIVATION OF THE NAME. *Pimelea*, said to be from *πυμῆλη* fat. The trees yield very fat oil and resin.

A description of the glories of this month—the forerunner of bounteous autumn—would be a volume of splendid beauties; it is, for the most part, executed by the Author of the Months; “Our moral being owes deep obligations to all who assist us to study nature aright; for, believe us, it is high and rare knowledge to know, and to have, the full and true use of our eyes. Millions go to the grave in old age without ever having learned it; they were just beginning perhaps to acquire it, when they sighed to think that ‘they who look out of the windows were darkened;’ and that, while they had been instructed how to look sad shadows had fallen on the whole face of nature; and that the time for those intuitions was gone for ever. But the science of seeing has now found favor in our eyes; and ‘blessings are with them and eternal praise,’ who can discover, discern, and describe the least as the greatest of nature’s works; who can see as distinctly the finger of God in the little humming-bird murmuring around a rose-bush, as in that of ‘the star of Jove, so beautiful and large,’ shining sole in heaven.—Take up now almost any book you may, or any branch of natural history, and instead of the endless dry details of imaginary systems and classifications, in which the ludicrous littleness of man’s vain ingenuity used to be set up as a sort of symbolical scheme of revelation of the sublime varieties of the inferior—as we choose to call it—creation of God, you find high attempts in a humble spirit rather to illustrate tendencies, and uses, and harmonies, and order, and design.

A delightful author says that "August is the month of harvest. The crops usually begin with rye and oats, proceed with wheat, and finish with peas and beans. Harvest-home is still the greatest rural holiday in England, because it concludes at once the most laborious and most lucrative of the farmer's employments, and unites repose and profit. Thank heaven there are, and must be, seasons of some repose in agricultural employments, or the countryman would work with as unceasing a madness, and contrive to be almost as diseased and unhealthily as the citizen. But here again, and for the reasons already mentioned, our holiday-making is not what it was. Our ancestors used to burst into an enthusiasm of joy at the end of harvest, and appear even to have mingled their previous labour with considerable merry-making, in which they imitated the equality of the earlier ages. They crowned the wheat-sheaves with flowers, they sang, they shouted, they danced, they invited each other, or met to feast, as at Christmas, in the halls of rich houses; and what was a very amiable custom, and wise beyond the commoner wisdom that may seem to lie on the top of it, every one that had been concerned, man, woman, and child, received a little present—ribbons, laces, or sweatmeats.

The farmer is in the field, like a rural king amid his people—the labourer, old or young, is there to collect what he has sown with toil, and watched in its growth with pride; the dame has left her wheel and her shady cottage, and, with sleeve-defended arms, scorns to do less than the best of them:—the blooming damsel is there, adding her sunny beauty to that of universal nature; the boy cuts down the stalks which overtop his head; children glean amongst the shocks; and even the unwalkable infant sits propt with sheaves, and plays with the stubble, and

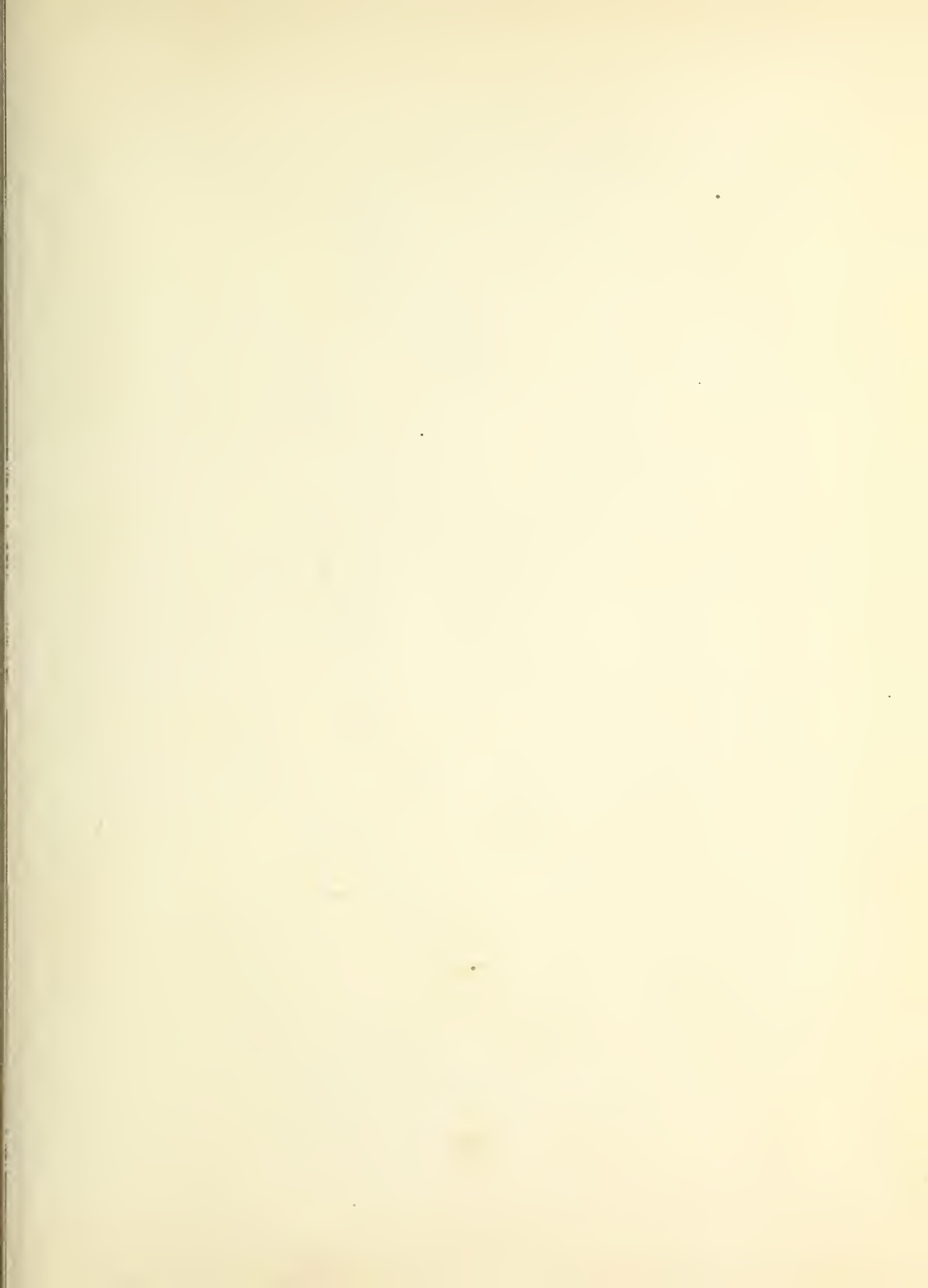
With all its twined flowers.

Such groups are often seen in the wheat-field as deserve the immortality of the pencil. There is something too about wheat-harvest, which carries back the mind, and feasts it with the pleasures of antiquity. The sickle is almost the only implement which has descended from the olden times in its pristine simplicity—to the present hour neither altering its form nor becoming obsolete amid all the fashions and improvements of the world. It is the same now as it was in those scenes of rural beauty which the scripture history, without any laboured description, often by a single stroke, presents so livingly to the imagination; as it was when tender thoughts passed

Through the sad heart of Ruth, when, sick for home,
She stood in tears amid the alien corn;

when the minstrel-king wandered through the solitudes of Paran, or fields reposing at the feet of Carmel; or "as it fell on a day, that the child of the good Shunamite went out to his father to the reapers. And he said unto his father, My head, my head! And he said to a lad, Carry him to his mother. And when he had taken him, and brought him to his mother, he sat on her knee till noon, and then died." 2 Kings, c. iv. 18—20.

Let no one say it is not a season of happiness to the toiling peasantry; I know that it is. In the days of boyhood I have partaken their harvest labours, and listened to the overflowing of their hearts as they sate amid the sheaves beneath the fine blue sky, or among the rich herbage of some green headland beneath the shade of a tree, while the cool keg plentifully replenished the horn, and sweet after exertion were the contents of the harvest-field basket. I know that the poor harvesters are amongst the most thankful contemplators of the bounty of Providence, though so little of it falls to their share. To them harvest comes as an annual festivity. To their healthful frames, the heat of the open fields, which would oppress the languid and relaxed, is but an exhilarating and pleasant glow. The inspiration of the clear sky above, and of scenes of plenty around them, and the very circumstance of their being drawn from their several dwellings at this bright season, open their hearts and give a life to their memories: and many an anecdote and history from "the simple annals of the poor" are there related, which need only to pass through the mind of a Wordsworth or a Crabbe, to become immortal in their mirth or woe.





Marcellia decussata?

MARCETIA DECUSSATA.—CROSS-LEAVED MARCETIA.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, MELASTOMACEÆ.

CHARACTER OF THE GENUS MARCETIA. Tube of the calyx, oblong or cylindrical, with four lanceolate lobes. Petals 4, Oval (ovate) acute. Stamens 8, equal (subequal); anthers with two tubercles at the base, oblong, opening by a single pore. Ovary free, glabrous. Style filiform. Stigma minute. Capsule 4-valvular, 4-celled, nearly equal to the tube of the calyx. Seeds cochleate.

DESCRIPTION OF THE SPECIES, MARCETIA DECUSSATA. Shrub erect (nine inches high in the specimen described, but from native specimens evidently attaining the size of a small bush.) Stem much branched, round; dark brown, cracked, and exfoliating; branches erect; twigs four-sided, glanduloso-pubescent. Leaves ($3\frac{1}{2}$ lines long) ovate, spreading, mucronulate, 3-nerved, pubescent on both sides, also with short tomentum below, dark green above, paler below, entire and revolute in the edges, middle-rib channelled in front, prominent behind. Flowers small, solitary, axillary, on pedicels shorter than the leaves, about the middle jointed, and there having two opposite leaf-like bracts, above this point turgid when in fruit. Perhaps it would be more correct to consider all below the joint a short axillary branch, with two leaves at the apex, and a terminal bracteate single-flowered peduncle. Calyx urceolate, glanduloso-pubescent, without bracteoles, or rarely a small one, 4-toothed, teeth spreading, subulate, more than half the length of the tube. Corolla 4-petalled, spreading between the teeth of the calyx, and fully three times as long as them, pale rose-coloured, slightly blotched, ovato-lanceolate, with a small deflected mucro, inserted into the throat of the calyx, glabrous. Stamens 8, inserted into the throat of the calyx, alternately opposite to and between the petals; filaments subequal, erect, scarcely inclining to one side of the flower, glabrous, colourless, equal in length to the petals, but as these are spreading, the stamens project far beyond the corolla, jointed at about two-thirds of the height, and there when in bud folded forwards; anthers at first orange-coloured, afterwards yellow, about half as long as the filaments, slightly declined, without crenatures in front, opening by one terminal pore, having at the base two small rounded auricles, which are rather larger in the longer stamens. Style filiform, rather longer than the stamens, and slightly deflected to the opposite side of the flower from them. Stigma minute. Germen superior, ovate, truncated, nearly as long as the calyx, with eight small teeth on its apex, 4-celled. Ovules very numerous, attached to central placenta, cochleate.

POPULAR AND GEOGRAPHICAL NOTICE. The genus *Marcetia* was established by Decandolle, and the species, believed to be all from Brazil. A plant believed to be one of his species, has been found by Schomburgk to extend to British Guiana. We believe Mr. Benthams has inadvertently referred to Gardner's Specimens, No. 1288, as identical with Schomburgk's No. 1040. The desquamation of the cuticle of the stem and branches, and a remarkable enlargement of the fruit-bearing pedicels above the bracts in Gardner's Plant, are not observed in Schomburgk's. We have no doubt of Gardner's, No. 1288, being identical with the plant now described. Several of the species of *Marcetia* grow at considerable elevations on the mountains; the one now described is found in Bahia, at an elevation of 2000 feet. It is a small neat looking shrub, flowering freely, and during a considerable period.

INTRODUCTION; WHERE GROWN; CULTURE. The species described, the first in cultivation in Britain, was raised at Mr. Cunningham's nursery, Comely Bank, near Edinburgh, from seeds sent from Brazil, by Mr. Gardner. It has been kept in the stove, and one plant placed lately in the greenhouse, stands there in October without injury. It has required no particular management, and has flowered in September and October abundantly.

DERIVATION OF THE NAME. *Marcetia* in honour of Dr. Mareet, to whom we owe some extremely interesting observations on the effects of poisons on vegetables.

It is remarked by the gentleman-usher of the year, that "the fruit garden is one scene of tempting profusion.

"Against the wall, the grapes have put on that transparent look which indicates their complete ripeness, and have dressed their cheeks in that delicate bloom which enables them to bear away the bell of beauty from all their rivals. The peaches and nectarines have become fragrant, and the whole wall where they hang is 'musical with bees.' Along the espaliers, the rosy-cheeked apples look out from among their leaves, like laughing children peeping at each other through screens of foliage; and the young standards bend their straggling boughs to the earth with the weight of their produce.

"Let us not forget to add, that there is one part of London which is never out of season, and is never more in season than now. Covent-garden market is still the garden of gardens; and as there is not a month in all the year in which it does not contrive to belie something or other that has been said in the foregoing pages, as to the particular season of certain flowers, fruits, &c., so now it offers the flowers and the fruits of every season united. How it becomes possessed of all these, I shall not pretend to say: but thus much I am bound to add by way of information,—that those ladies and gentlemen who have country-houses in the neighbourhood of Clapham-common or Camberwell-grove, may now have the pleasure of eating the best fruit out of their own gardens—provided they choose to pay the price of it in Covent-garden market."

September is the month of in-gathering, when the produce of the year is warehoused for our subsistence while nature reposes during winter, and is awakened in the spring, and while she is doing her summer business, until, in the ensuing autumn, she offers to our use the provision for another year.

Autumn is aptly termed by Dr. Drake the "Evening of the Year." At this season we may advantageously indulge with these beautiful passages from his "Evenings in Autumn." He says—

"Evening, when the busy scenes of our existence are withdrawn, when the sun descending leaves the world to silence, and to the soothing influence of twilight, has been ever a favourite portion of the day with the wise and good of all nations. There appears to be shed over the universal face of nature, at this period, a calmness and tranquility, a peace and sanctity as it were, which almost insensibly steals into the breast of man, and disposes him to solitude and meditation. He naturally compares the decline of light and animation with that which attaches to the lot of humanity; and the evening of the day, and the evening of life, becomes closely assimilated in his mind.

"It is an association from which, where vice and guilt have not hardened the heart, the most beneficial result has been ever experienced. It is one which, while it forcibly suggests to us the transient tenure of our being here, teaches us, at the same time, how we may best prepare for that which awaits us hereafter. The sun is descending, after a course of beneficence and utility, in dignity and glory, whilst all around him, as he sinks, breathes one diffusive air of blessedness and repose. It is a scene which marshals us the way we ought to go; it tells us, that after having passed the fervour and vigour of our existence, the morning and the noon of our appointed pilgrimage, thus should the evening of our days set in, mild yet generous in their close, with every earthly ardour softened or subdued, and with the loveliest hues of heaven just mingling in their farewell light.

"It is a scene, moreover, which almost instinctively reminds us of another world; the one we are yet inhabiting is gradually receding from our view; the shades of night are beginning to gather round our heads; we feel forsaken and alone, whilst the blessed luminary now parting from us, and yet burning with such ineffable majesty and beauty, seems about to travel into regions of interminable happiness and splendour. We follow him with a pensive and a wistful eye, and, in the vales of glory which appear to open round his setting beams, we behold mansions of everlasting peace, seats of ever-during delight. It is then that our thoughts are carried forward to a Being infinitely good and great, the God and Father of us all, who, distant though he seem to be, and immeasurably beyond the power of our faculties to comprehend, we yet know is about our path, and about our bed, and careth for us all; who has prepared for those who love him, scenes of unutterable joy, scenes to which, while rejoicing in the brightness of his presence, the effulgence we have faintly attempted to describe shall be but as the glimmering of a distant star."

We are indebted to that charming Work, "the Botanist," for the Figure and Description.





Psilla maritima?

SCILLA MARITIMA.—OFFICINAL SQUILL, OR SEA ONION.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ASPHODELEÆ.—THE ASPHODEL TRIBE.

Fig. (a) exhibits the petals with the stamens and anthers; (b) a bractea; (c) the germen and style.

THIS valuable article of the vegetable materia medica is a native of the sandy shores of France, Spain, Portugal, Italy, Sicily, Syria, and the Levant. Sometimes it is found far inland: for instance, at the foot of the Estrella mountains; so that, as Link observes, *maritima* is rather a fallacious appellation. It thrives well in this country, in large garden pots, and was cultivated by Parkinson in 1628; but requires protection during winter in a common garden frame. With us, it blossoms in April and May; but in its native soil the flowers are said to be produced in July and August; the leaves appearing in October and November.

The bulb, improperly called the root, is sometimes as large as a child's head, and often, when fresh imported, throws out the flowering stem while lying in the shop windows. It is oblong, and composed of several fleshy scales, attenuated at both edges, and closely applied one over the other, like the coats of an onion. Its outer coat is either pale and whitish, or of a purplish-red colour. The proper roots, which are slender and whitish, issue from a plate at the base of the bulb, well represented in our figure, but altogether omitted by Redoute, in his pictorial work on Liliaceous plants. The leaves appear long after the flowers; are pointed, a foot or eighteen inches long, radical, numerous, large, sword-shaped, ascending, wavy, recurved, and of a deep green colour. The stem is round, smooth, succulent, and rises from the centre of the leaves to the height of two or three feet. The flowers are extremely numerous, and produced in a long, close, simple cluster, upon purplish peduncles; accompanied by small linear, twisted, deciduous bracteas. In this, as in other species of Squill, there is no calyx. The corolla consists of six white, elliptical, spreading petals, with a reddish mark in the middle of each. The filaments are six, awl-shaped, shorter than the petals, to whose bases they are attached, and furnished with oblong, incumbent, green anthers. The germen is roundish, with a short style, and simple stigma. The capsule is oblong, smooth, marked with three furrows, 3-celled, and contains several roundish, compressed seeds.

QUALITIES AND CHEMICAL PROPERTIES.—The bulb of the squill, which consists of concentric layers, of a white or purplish colour, is inodorous. When recent, it is extremely bitter, acrid, nauseous, and clammy; dried, it is bitter and less acrid. In France, it is usual to use the intermediate tunics only, the outer ones being dry and without taste, while the middle of the bulb is mucilaginous and nearly insipid. In this country, the whole bulb is generally used; low prices being unfortunately more considered than the quality of the drug.

Dried Squill has been subjected to chemical examination by Vogel, who states that it owes its properties to a bitter principle, which he has named *Scillitine*. Besides Scillitine he found it to contain gum, tannin, citrate of lime, sugar, and woody fibre.

Scillitine is obtained by the following process. The juice of the bulbs being expressed, is to be boiled for a few minutes, and the citrate of lime that appears is to be separated. Evaporate to dryness, and digest the dry residue in alcohol as long as that liquid will take up any thing. Evaporate the alcoholic solution to dryness, and the residue (*scillitine* and *tannin*) is to be re-dissolved in water, into which acetate of lead is to be dropped to throw down the tannin. Filter the liquid, and separate the excess of lead by means of a current of sulphuretted hydrogen gas. The liquid being again filtered, evaporate to dryness to drive off the acetic acid from the acetate. The dry mass, which is white, transparent, and breaks with a resinous fracture, is *scillitine*, mixed with a little sugar, from which it cannot be separated. M. Tilloy, of Dijon, is said to have proved that the Scillitine of Vogel is formed by the combination of several principles, and that it is only a mixture of uncrystallizable sugar, of an excessively acrid matter, and a very bitter substance, which he succeeded in separating.

MEDICAL PROPERTIES AND USES.—Squill, according to its dose, is expectorant, diuretic, emetic, and purgative. As an expectorant, it is most generally used when there is an increased secretion of pulmonary mucus, and is supposed by Dr. Murray to operate by promoting absorption, diminishing the quantity of fluid effused, and thus facilitating the expectoration of the remainder. This, like most of the theories that have been broached on the action of medicines, appears to us to be very fanciful, and perhaps we may be thought just as visionary, when we state that squills seem to promote expectoration simply by increasing the action of the mucous membrane, whereby its secretion is greater; consequently less viscid, and more readily ejected by coughing. In inflammatory attacks, previously to the abstraction of blood, and the use of other evacuants, squill is generally considered as too stimulant, which effect may be controlled by a judicious combination with nitre, or tartarized antimony. As an expectorant it is particularly useful in whooping-cough; and although its effects as an emetic are truly distressing, it is the one usually employed in this obstinate disease. To produce expectoration, the syrup or vinegar of squill are generally employed, the dose of the former being a drachm; of the latter, half that quantity, repeated every four or five hours. When vomiting is required, larger doses, oftener repeated, are necessary.

As a diuretic, squill is a valuable medicine, and is given in its recent or dried state. The dose of the former is from five to fifteen grains; of the latter, from one to three: the smaller dose should be commenced with, morning and evening, in the form of a pill, and gradually increased in quantity until the diuretic effect is obtained. By some it has been recommended to give it so as to induce some degree of nausea; but it is very distressing to the patient, and often obliges us to discontinue a medicine of undoubted utility; for if the stomach once rebels against it, it is seldom that it can be given in such doses again. Combined with mercury its diuretic effects are materially increased, the former appearing to rouse the absorbents, while the latter stimulates the kidneys. This combination is particularly adapted to those cases in which dropsy depends on, or is connected with enlargement, torpor, or chronic inflammation of the liver. Of the mercurial preparations, the Mercurial pill, and calomel, are generally preferred, though Cullen recommends the oxymuriate.





Pinus Loez.

PINUS, OR ABIES LARIX, LARIX EUROPEA.—THE WHITE LARCH TREE.

CLASS XXI. MONŒCIA.—ORDER VIII. MONADELPHIA.

NATURAL ORDER, CONIFERÆ.—THE FIR TRIBE.

FIG. (a) the stameneous catkin, natural size; (A) do. enlarged; (BB) front and side views of the polleniferous scales; (c) pistilliferous catkin natural size; (C) do. enlarged; (d e) front and side views of the scales separated; (DE) do. enlarged; (f) naked seeds with their wings; (g) scales of the cone; (h) a leaf.

THE White Larch is a native of the Alps, of Switzerland, Italy, Germany, and according to Miller, of Siberia. It has been long cultivated very extensively, and with great advantage, in this country; it flowers in March and April, before the leaves are fully expanded.

The Larch is a tree of quick growth, rising to the height of fifty feet or more, with wide spreading branches, whose extremities droop in the most graceful manner. They are adorned with numerous narrow, spreading, linear, bluntish, entire, soft, bright-green leaves, which spring in pencil-like tufts, from alternate, perennial cup-like, scaly buds. The leaves are deciduous, about an inch long, and have no other stipulas than the scales of the bud. From similar buds spring separately, on the same branch, the male and female flowers; the latter only accompanied by a few leaves. The bractees to each flower are numerous, recurved, obtuse, with fine fringe-like teeth, chaffy, reddish-brown, and deciduous. The male flowers are in small lateral, cylindrical catkins, yellow, drooping, about an inch long, with the common filament much shorter than the bractees; the anthers crowded, deflexed, inflated, and two-lobed in front, with a short, recurved point. The female catkins are erect, ovate; twice as large as the male, beautifully variegated with green and pink; one lip of each scale is orbicular; the other much larger, fiddle-shaped, reflexed, with a prominent, awl-shaped green point. This lip becomes erect, enlarged, projecting always beyond the orbicular one, which dilates, hardens, and becomes the seed-bearing scale of the cone. The strobiles or cones are erect, rather above an inch long, ovate, obtuse at the apex, and purple, when young; and becoming of a reddish brown, when ripe. They have imbricated scales, which are spreading, orbicular, slightly reflexed, and jagged on the edges. In each scale are two-winged seeds.

The Larches are scarcely to be separated generically from the Abietes or Firs, as they agree in having their cone-scales rounded and membranous, and chiefly differ in the fasciculate arrangement of their leaves. The distinction is, however, serviceable, and a still further segregation has been attempted of the Cedars from the true Larches: the leaves of the latter being deciduous, while those of the former are evergreen.

The Larch is, after the common pine, probably the most valuable of the tribe. Though a native of the mountains of more southern regions, it thrives uncommonly well in Britain; and as it grows more rapidly, and also in more varied soils than the other, it is, perhaps, better adapted for general cultivation. In the south, it attains an immense height; some single beams of Larch, employed in the palaces and public buildings of Venice being said to be one hundred and twenty feet long. Even in the plantations of the Duke of Athol, and other proprietors in Perthshire, some larches are at least one hundred feet high. The wild alternation of hill and valley in that county, with the general opening of the glens and exposure of the surface to the south, seem to afford the larch a situation something like its native locality in the Tyrolese and Dalmatian Alps: for though other trees, and some of them fast growing ones, such as the spruce, have been planted at the same time, the larch overtops them all; and in summer, when it is in the full luxuriance of its leaves, (which are a bright clover green,) it rises over the dark forest like an obelisk of beryl. The Larch sheds its leaves, and is probably by that means saved from those keen blasts of the very early spring that prove destructive to pines. Even when naked it is an ornamental tree. The trunk is generally straight, tapering gradually to a point; the branches, which are rather small in proportion to the tree, taper up in the form of a perfect cone; and the whole is of a lively brown, streaked with a golden colour.

It has been extensively planted, more especially in Scotland; and the success has been far greater, and far more uniform, than in the case of any other tree, not a native of the country. It appears that the quality of Larch timber does not depend so much upon the maturity of the tree, and the slowness of its growth, as that of the pine,—as a fishing boat, built of Larch only forty years old, has been found to last three times as long as one of the best Norway pine.

Professor BURNETT in his Outlines, observes, "That much prejudice has existed against the use of the Larch in ship-building; and some persons have not scrupled to call Larch vessels 'leather ships,' and 'sailors' coffins.' But the following statement, given by Mr. Gould, will shew that such notions could only have been founded upon ignorance.

"In 1809, Larch timber, grown by his grace the Duke of Athol, at Dunkeld, was first used in the British Navy at Woolwich, in the building of the *Serapis* storeship, the *Sybilie* frigate, the bottom of a lighter, and for piles driven into the mud, alternately wet and dry; and in all these situations proved a durable wood. The *Athol*, of twenty-eight guns, was also built entirely of Larch timber from his Grace's estate; and at the same time the *Niemen*, of the best Riga. After their first course of service, on being examined, the *Niemen* was found in a decayed state, and condemned accordingly; whilst the *Athol* was again put into commission, and is at this time (December, 1832,) on a voyage to the West Indies. It was also remarked that, during the time this Larch timber lay in Woolwich dockyard, exposed to the weather, neither the heart nor the sapwood were in the least decomposed; nor was there the slightest appearance of fungi growing upon it."

It is not so buoyant, however, nor so elastic; and as it does not dry so completely as pine; boards of it are more apt to warp. It is, however, much more tough and compact; and what are very valuable properties, it approaches nearly to being proof, not only against water, but against fire. If the external timbers, and the principal beams of houses, were made of Larch, fires would not only be less frequent, but they would be far less destructive; for, before a Larch beam be even completely charred on the surface, a beam of pine, or of dry oak, will be in a blaze beyond the ordinary means of extinguishment. Larch, however, is heavier to transport and elevate, and also much harder to work, than pine; and as these circumstances are all against the profits of the builder, they probably prevent the introduction of this most safe and durable timber. The Venetian houses constructed of it show no symptoms of decay; and the complete preservation of some of the finest paintings of the great masters of Italy is, in some respects, owing to the panels of Larch on which they are executed.

The objects for which Larch timber seems preferable to every other, are chiefly these:—gates, palings, posts of all kinds that are inserted in the earth or in water, wooden buildings, many agricultural implements, cottage furniture, bridges and gangways, carriages for transporting stones and all hard and rough materials, barrows for builders and road-makers, lighters, fenders, and embanking piles, lock and dock gates for canals and harbours, coal and lime waggons, vessels for carrying lime, pit-props, and hop-poles of the smaller thinnings. For all these purposes, and many minor ones, Larch would come considerably cheaper than any timber now in use; and would, in the average of them, last at least thrice as long,—the saving to the public would thus be immense; and the lands upon which an abundant supply might be raised in every county, are at present lying idle.

The bark of the Larch is nearly as valuable to the tanner as that of the oak. Venice turpentine is the produce of this tree; it also yields a gum which is known as that of Orenburg. This gum is said to issue from the heart-wood, while the turpentine comes from the crypte of the bark; it is wholly soluble in water, like gum arabic, and supersedes its use in some few places. The mode in which this substance is commonly procured is remarkable. It occasionally happens that whole forests of Larch, in different parts of the Russian empire, are consumed by fire, either accidentally or wilfully ignited. During the combustion this gummy matter issues from the inner part of the trunk; it is diligently collected by the natives, who esteem it a delicate food. It is also supposed to be an antiscorbutic. Exudations also are found on these firs which resemble manna, instead of which they are used, under the name of *mannu of Briancon*; but this manna is said not to have more than half the cathartic power of that of the East.

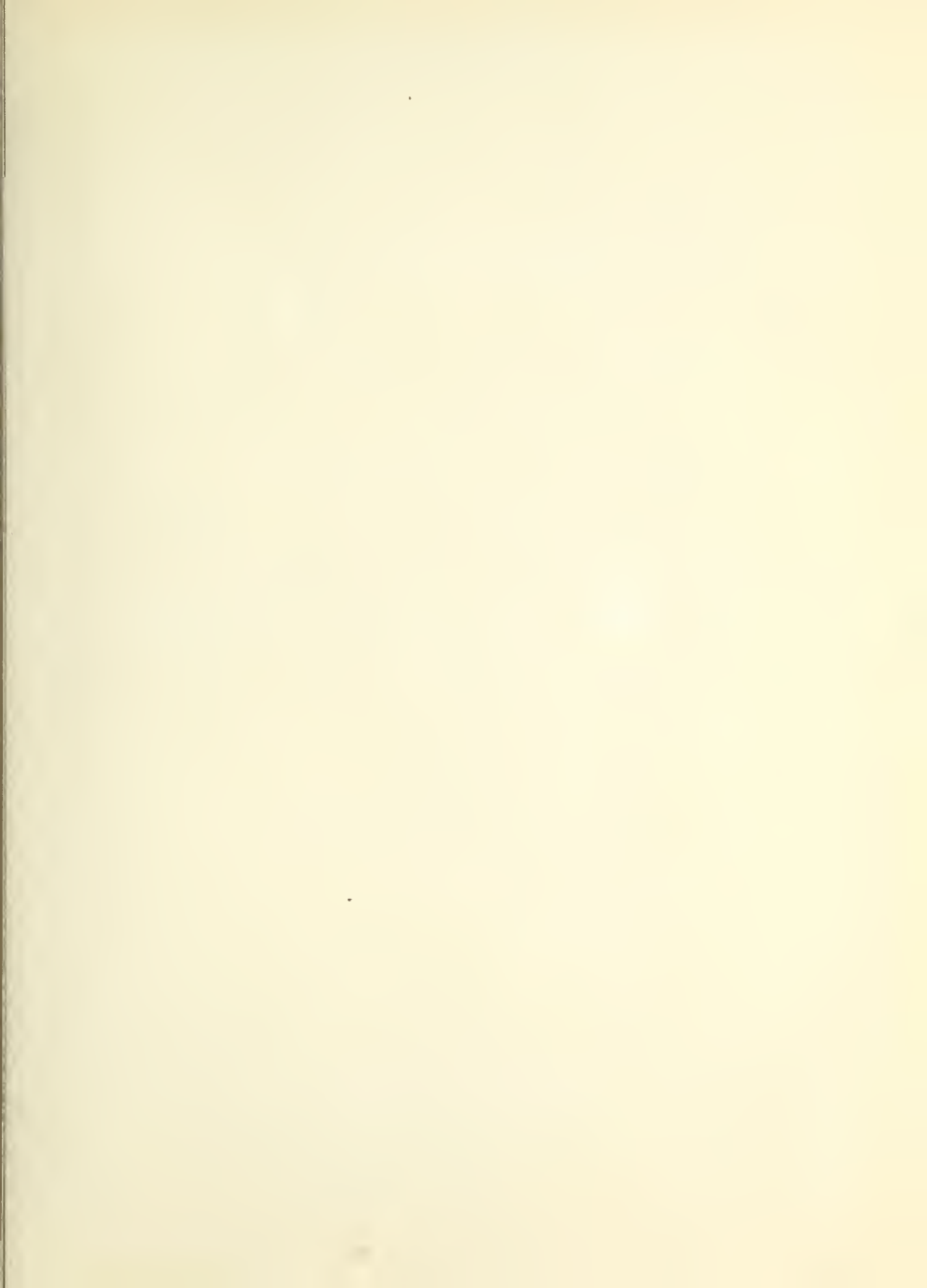
The inner bark, when boiled, mixed with rye-flour, and buried for a few hours in the snow, furnishes the hardy Siberian hunters with a ferment, which they use instead of leaven, when that substance is spoiled, as it frequently is, by the severity of the cold.

VENICE TURPENTINE, a produce of this species of pine, is generally esteemed the best of the juices called Turpentine, after that of *Pistachia Terebinthus*. It is usually thinner than any sort, of a pale yellowish colour, and of a hot, pungent, bitterish taste. It is said to remain always, or at least a very long time, in a state of liquidity; if it should at length become at all concrete, it is only on the edges, or sides of the vessel in which it may be contained. This property is adverted to by Pliny, *Lib. 16. c. 10*.

Besides Venice Turpentine, the Larch also yields the *Orenburg Gum*, of the Russian shops; and, although it is used in no other country, it is described as a good substitute for Gum Arabic. It is very glutinous, rather dry, of a reddish colour, and a sub-resinous taste; but wholly soluble in water. The mode in which this substance is obtained is very remarkable. It sometimes happens that whole forests of Larch, in some parts of the Russian empire, are accidentally consumed by fire. During the combustion of the medullary part of the trunks, a gum issues forth, which is diligently collected by the natives, for the purpose, not only of rendering their bows glutinous, but also of being eaten as a delicacy. It is also supposed to act as an anti-scorbutic, and a useful astringent for the gums.

MANNA OF THE LARCH (*Manna Larigna*. *Manne de Briancon*.) About the month of June, when the sap of the Larch is most luxuriant, it produces small white drops, of a sweet, glutinous matter, like Calabrian manna. This manna is collected by the peasants, who go very early in the morning to the forests, before the sun dissipates it, and lop off, with hatchets, the branches that bear it; carrying them afterwards to the shade, where they can collect the grains at their leisure. The Venetians have many different names for the varieties of it; and in Dauphiny it has been very generally employed as a laxative; but it is said to possess not more than half the strength of that which is yielded by the Calabrian ash.

In the Language of Flowers, the Larch is the emblem of boldness.





Alstromeria Perrebaubii

ALSTREMERIA ERREMBAUTII.—ERREMBAUT'S ALSTREMERIA.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, AMARYLLIDACEÆ.—THE NARCISSUS TRIBE.

CHARACTER OF THE GENUS ALSTREMERIA. Perigonium corolla-like, superior, six-parted, and rather bell-shaped, regular, or somewhat two-lipped, interior leaflets the narrower, two somewhat tubulose at the base. Stamens six, inserted at the bottom of the perigonium, filaments erect, or declinate. Anthers ovate, erect. Ovary inferior, three-celled. Ovula numerous in the cells, horizontal, anatropous. Style filiform, in the direction of the stamens, stigma trifid, lobes replicate. Capsule oblong, or globose, three to six ribbed, three-celled, three-valved, rarely an indehiscent berry. Seeds many, in the cells rather globose, horizontal, testa-membranaceous, rugose.

DESCRIPTION OF THE HYBRID ALSTREMERIA ERREMBAUTII. Stem round, about eighteen inches high, smooth. Involucral leaves about four, smooth, linear, lanceolate, acute, about two inches long, and a quarter of an inch broad. Peduncles about the length of the involucral leaves, round and smooth. Bracts smooth, linear, varying from an inch long, and three lines broad, to half an inch long, and a line and a half broad. Flowers about twelve, arranged in form of an umbel, about three inches in length, and two inches and a half in diameter, each peduncle bearing two, or rarely three, flowers. Leaflets of the perigone six, ovate, or obovate, more or less apiculate, smooth, the interior white, more or less painted of a delicate rose pink colour, and beautifully spotted with purple, or short purple streaks, the apicula is more or less of a delicate green colour; The exterior surface of the leaflet is of a deeper pink colour, and is not so much spotted or streaked as the interior surface, and has a large deep green blotch near the apex. Filaments six, declinate, shorter than the style, of a dark pink colour. Anthers yellow, oblong, innate, about one sixth the length of the stamens, two-celled, cells opposite, contiguous. Style about one sixth longer than filaments, smooth, and of the same colour as the stamens, and having the apex divided into three parts, each of which is reflexed; stigma minute. Germen ovate, or globular, smooth, with six deep furrows.

POPULAR AND GEOGRAPHICAL NOTICE. The Genus *Alstroemeria* is composed of herbaceous plants with tuberous roots. They are exclusively inhabitants of South America, and that part of North America situate within the tropics. The whole of the species of this genus are peculiarly handsome, and well worthy of cultivation by those who delight in a collection of beautiful and showy plants. *Alstroemeria Salsilla* is a plant of great beauty, and native of Peru. Its roots are cultivated in the West Indies in like manner as the potatoe with us, and are eaten by the inhabitants.

INTRODUCTION WHERE GROWN; CULTURE. The plant now figured, *Alstroemeria Errembautii*, is a hybrid, probably from *peregrina* or *psittacina*, and was first raised in the Belgium Garden. This is not a tribe of plants very difficult of culture. Many of the species require no protection, and may be planted out of doors, against a south wall, or in the front of a greenhouse, provided that the soil is both light and dry; in such a situation the following species have stood the severest of our winters, in the Birmingham Botanical Gardens, without having so much as a leaf injured. *Alstroemeria acutifolia*, *pulchella*, *versicolor*, *Hookeri*, *tricolor*, and *psittacina*. The only protection there employed was to keep the soil well loosened on the surface. All the species may be propagated by division, but the best plants are raised from seeds.

DERIVATION OF THE NAME. *Alstroemeria*, after Baron Alstroemer, a Swedish botanist. *Errembautii*, probably after the name of the person who raised it.

We have "hopes and fears" for the year at all seasons, as we have for ourselves "in infancy and throughout life." After the joyousness of summer comes the season of foreboding, for "the year has reached its grand climacteric, and is fast falling 'into the sere, the yellow leaf.' Every day a flower drops from out the wreath that binds its brow—not to be renewed. Every hour the sun looks more and more askance upon it, and the winds, those summer flatterers, come to it less fawningly. Every breath shakes down showers of its leafy attire, leaving it gradually barer and barer, for the blasts of winter to blow through it. Every morning and evening takes away from it a portion of that light which gives beauty to its life, and chills it more and more into that torpor which at length constitutes its temporary death. And yet October is beautiful still, no less 'for what it gives than what it takes away;' and even for what it gives during the very act of taking away.—The whole year cannot produce a sight fraught with more rich and harmonious beauty than that which the woods and groves present during this month, notwithstanding, or rather in consequence of, the daily decay of their summer attire; and at no other season can any given spot of landscape be seen to much advantage as a mere picture.—An extensive plantation of forest trees presents

a variety of colours and of tints that would scarcely be considered as *natural* in a picture, any more than many of the sunsets of September would. Among those trees which retain their green hues, the fir tribe are the principal; and these, spiring up among the deciduous ones, now differ from them no less in color than they do in form. The alders, too, and the poplars, limes, and horse-chestnuts, are still green,—the hues of their leaves not undergoing much change as long as they remain on the branches. Most of the other forest trees have put on each its peculiar livery; the planes and sycamores presenting every variety of tinge, from bright yellow to brilliant red; the elms being, for the most part, of a rich sunny amber, varying according to the age of the tree and the circumstances of its soil, &c.; the beeches having deepened into a warm glowing brown, which the young ones will retain all the winter, and till the new spring leaves push the present ones off: the oaks varying from a dull dusky green to a deep russet, according to their ages; and the Spanish chestnuts, with their noble embowering heads, glowing like clouds of gold.—As for the hedge rows, though they have lost nearly all their flowers, the various fruits that are spread out upon them for the winter food of the birds, make them little less gay than they were in spring and summer. The most conspicuous of these are the red hips of the wild rose; the dark purple bunches of the luxuriant blackberry; the brilliant scarlet and green berries of the nightshade; the wintry-looking fruit of the hawthorn; the blue sloes, covered with their soft tempting-looking bloom; the dull bunches of the woodbine; and the sparkling holly-berries. We may also still, by seeking for them, find a few flowers scattered about beneath the hedge-rows, and the dry banks that skirt the woods, and even in the woods themselves, peeping up meekly from among the crowds of newly fallen leaves. The prettiest of these is the primrose, which now blows a second time. But two or three of the persicaria tribe are still in flower, and also some of the goosefoots. And even the elegant and fragile heathbell, or hare-bell, has not yet quite disappeared; while some of the ground flowers that have passed away have left in their place strange evidences of their late presence; in particular, the singular flower (if it can be called one) of the arums, or lords and ladies, has changed into an upright bunch, or long cluster, of red berries, starting up from out the ground on a single stiff stem, and looking almost like the flower of a hyacinth. The open fields during this month, though they are bereaved of much of their actual beauty and variety, present sights that are as agreeable to the eye, and even more stirring to the imagination, than those which have passed away. The husbandman is now ploughing up the arable land, and putting into it the seeds that are to produce the next year's crops; and there are not, among rural occupations, two more pleasant to look upon than these: the latter, in particular, is one that while it gives perfect satisfaction to the eye as a mere picture, awakens and fills the imagination with the prospective views which it opens. It is not till this month that we usually experience the equinoctial gales, those fatal visitations which may now be looked upon as the immediate heralds of the coming on of winter; as in the spring they were the sure signs of its having passed away. Bitter-sweet, is it, now, to lie awake at night, and listen wilfully (as if we would not let them escape us) to the fierce howlings of the winds, each accession of which gives new vividness to the vision of some tall ship, illumined by every flash of lightning—illumined, but not rendered *visible*—for there are no eyes within a hundred leagues to look upon it; and crowded with human beings, every one of which sees, in imagination, his own grave a thousand fathom deep beneath the dark waters that roar around!

It is as combining the decline of the *day* with that of the *year*, the period both of beauty and decay, that an *Evening in Autumn* becomes so generally the parent of ideas of a solemn and pathetic cast. Not only, as in the first of these instances, do we blend the sun-set of physical with that of moral being, but a further source of similitude is unavoidably suggested in the failure and decrepitude of the dying year, a picture faithfully, and in some points of view, mournfully emblematic of the closing hours of human life.

With the daily retirement of the sun, and the gradual approach of twilight, though circumstances, as we have seen, often associated in our minds with the transitory tenure of our mortal existence, there are usually connected so many objects of beauty and repose as to render such a scene in a high degree soothing and consolatory; but with the customary decline of light are now united the sighing of the coming storm, the edying of the withered foliage;

— for now the leaf
Incessant rustles from the mournful grove;
Oft startling such as, studious, walk below,
And slowly circles through the waving air.
But, should a quicker breeze amid the boughs
Sob, o'er the sky the leafy deluge streams;
Till choak'd, and matted with the dreary shower,
The forest-walks, at every rising gale,
Roll wide the wither'd waste, and whistle bleak.

These are occurrences which so strongly appeal to our feelings, which so forcibly remind us of the mutability of our species, and bring before us, with such impressive solemnity, the earth as opening to receive us, that they have, from the earliest period of society, and in every stage of it, been considered as typical of the brevity and destiny of man.

Like leaves on trees the race of man is found,
Now green in youth, now withering on the ground;
Another race the following spring supplies;
They fall successive, and successive rise;
So generations in their course decay;
So flourish these, when those are pass'd away;





Convallaria Majalis.

CONVALLARIA MAJALIS.—THE LILY OF THE VALLEY.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SMILACEÆ—THE SMILAX TRIBE.

CALYX none. Stalk naked, semi-cylindrical; cluster simple; flowers drooping, cup-shaped.—Leaves two, radical, elliptical, ribbed, stalked, pale green: flowers white, elegant, sweet-scented: berry scarlet. Perennial: flowers in May: grows in woods and on heaths.

Of the Lily of the Valley, called also Lily Convally, and May Lily, and, in some country villages, Ladder to Heaven;—in French, *le muguet*; *tis des vallées*; *muguet de Mai*: in the village dialect, *gros mouquet*: in Italian, *il mughetto*; *giglio convallio* [lily convally]; *giglio delle convalli*—there are three species: the Sweet-scented, the Grass-leaved, and the Spiked. The first is a native of Britain and many other parts of Europe. It flowers in May: whence it has been named by some the May Lily. Gerarde calls it Convall Lily, and says that in some places it is called Liriconfancie. It is also called May-blossom.

"The Lily of the Valley," says Mr. Martyn, "claims our notice both as an ornamental and a medicinal plant. As an ornamental one, few are held in higher estimation: indeed, few flowers can boast such delicacy, with so much fragrance. When dried they have a narcotic scent, and, reduced to powder, excite sneezing. A beautiful and desirable green colour may be prepared from the leaves with lime." The distilled water is used in perfumery.

There are several varieties of this species: one with red flowers, one with double red, and one with double white blossoms. There is also a variety much larger than the common sort, and beautifully variegated with purple. It was brought from the Royal Garden at Paris, and flowered several years in the Chelsea Garden: but the roots do not increase so much as the other varieties.

The Lily of the Valley requires a loose sandy soil and a shady situation. It is increased by parting the roots in autumn, which should be done about once in three years. They may be gently watered every evening in dry summer weather. When the roots of this plant are confined in a pot, it may also be increased by its red berry; but in the woods, where the roots are allowed to spread, it seldom produces the berry. The other species of the Lily of the Valley are natives of Japan.

Thunberg mentions one called the *Convallaria Japonica*; of which, he says, the knobs at the root were preserved in Japan, and were highly commended by the Japanese and the Chinese as good in different disorders.

"No flower amid the garden fairer grows
Than the sweet lily of the lowly vale,
The queen of flowers."
— "And valley-lilies whiter still
Than Leda's love."

KEATS'S ENDYMION, p. 10.
"The lily, silver mistress of the vale."

CHURCHILL.

Of the Solomon's-seal—called in French *le sceau de Salomon*; *le signet de Salomon*; *Pherbe de la rupture* [rupture-wort]; *le genouillet*: Italian, *il ginocchio*; *sigillo di Salomone*—there are seven species, and varieties of each: the Narrow-leaved, the Single-flowered, the Broad-leaved, the Many-flowered, the Cluster-flowered, the Star-flowered, and the Least Solomon's-seal, or One-blade.

"The root of the Single-flowered species," says Mr. Martyn, "is twisted and full of knots. On a transverse section of it, characters appear that give it the resemblance of a seal: whence its name of Solomon's-seal." It is also called White-root.

The roots of this and the Broad-leaved kind have, in times of scarcity, been made into bread; and the young shoots of the latter species are eaten by the Turks as we eat asparagus. All the species are elegant plants. They are hardy; and, in a light soil and a shady situation, increase very fast by the roots. The best time to transplant them, and to part the roots, is in autumn, soon after the stalks decay. They should not be removed oftener than every third year; but should have fresh earth, as deep as it can be changed without disturbing the roots, every spring. The earth should be kept moderately moist.

Gerarde gives a curious account of the virtues of these plants; not, however, of so much importance to the female sex, in the present day, as it might have been in his time: "The roote of Solomon's Seale stamped, while it is freshe and greene, and applied, taketh away in one night, or two at the most, any bruse, black or blew spots gotten by fals or women's wilfulnesse, in stumbling upon their hasty husbands' fists, or such like."

There is something delightfully fresh and cool in the appearance of these Lilies; of which the flowers are so pleasantly shaded by their large green leaves, that one wishes one's-self a fairy to lie in them, like Ariel in the bell of the cowslip:—

“Where the bee sucks, there lurk I;
In a cowslip's bell I lie.”

It is to these Mr. Hunt alludes in one of his poems, where he seems revelling to his heart's delight among all the sweets of spring:—

“Lilacs then, and daffodillies,
And the nice-leaved lesser lilies,
Shading, like detected light,
Their little green-tipt lamps of white.”

The Author of the ‘*Mirror of the Months*,’ calls them the “little illumination lamps,” and truly in their form they closely resemble the objects of his comparison. Hidden between their broad green leaves, and blooming unseen in the retired woodlands, we are accustomed, even from our childhood, to regard the lily of the valley as an emblem of modesty. A little poem written for the very young reader, but equally suitable to others, says of this beautiful spring flower:—

See the lily on its bed,
Hanging down its modest head,
While it scarcely can be seen,
Folded in its leaf of green;

Yet we love the lily well,
For its sweet and pleasant smell,
And would rather call it ours
Than a thousand gayer flowers.

Shakspeare alludes to its drooping posture:—

Shipwreck'd upon a kingdom where no pity,
No friends, no hope, no kindred weep for me,—
Almost no grave allowed me! like the lily
That once was mistress of the field and flourish'd,
I'll hang my head and perish.

Very few are the floral beauties which deck the barren hills and plains of Norway; yet Mr. Inglis says of the lily of the valley in that country, “It stood everywhere around, scenting the air, and in such profusion, that it was scarcely possible to step without bruising its tender stalks and blossoms. I have not seen this flower mentioned in any enumeration of Norwegian plants, but it grows in all the western parts of Norway, in latitude 59° and 60° wherever the ground is free from forest, in greater abundance than any other wild flower.”

It is rather singular that the fragrance of this flower, which is, while the plant is fresh, remarkable only for its sweetness, possesses, when dried, a powerfully narcotic influence. The root too of the wood-lily is extremely bitter. In Germany the flowers are made into wine.

The “*Mirror of the Months*,” a pleasing volume published in the autumn of 1825, and devoted to the service of the year, points to the appearance of nature at this time:—“The last storm of autumn, or the first of winter, (call it which you will) has strewn the bosom of the all-receiving earth with the few leaves that were still clinging, though dead, to the already sapless branches; and now all stand bare once more, spreading out their innumerable ramifications against the cold grey sky, as if sketched there for a study by the pencil of your only successful drawing-mistress—nature.

“Of all the numerous changes that are perpetually taking place in the general appearance of rural scenery during the year, there is none so striking as this which is attendant on the falling of the leaves; and there is none in which the unpleasing effects so greatly predominate over the pleasing ones. To say truth, a grove denuded of its late gorgeous attire, and instead of bowing majestically before the winds, standing erect and motionless while they are blowing through it, is ‘a sorry sight,’ and one upon which we will not dwell. But even this sad consequence of the coming on of winter (sad in most of its mere visible effects,) is not entirely without redeeming accompaniments; for in most cases it lays open to our view objects that we are glad to see again, if it be but in virtue of their association with past years; and in many cases it opens vistas into sweet distances that we had almost forgotten, and brings into view objects that we may have been sighing for the sight of all the summer long. Suppose, for example, that the summer view from the windows of a favourite sleeping-room is bounded by a screen of shrubs, shelving upwards from the turf, and terminating in a little copse of limes, beeches, and sycamores; the prettiest boundary that can greet the morning glance when the shutters are opened, and the sun slants gaily in at them, as if glad to be again admitted. How pleasant is it, when (as now) the winds of winter have stripped the branches that thus bound in our view to spy beyond them, as if through network, the sky-pointing spire of the distant village church, rising from behind the old yew-tree that darkens its portal; and the trim parsonage beside it, its ivy-grown windows glittering perhaps in the early sun! Oh, none but those who will see the good that is in every thing, know how very few evils there are without some of it attendant on them, and yet how much of good there is unmix'd with any evil!”

In the Language of Flowers, the Lily of the Valley is the emblem of return of Happiness.



Pyrus Pydonia!

PYRUS CYDONIA, VEL CYDONIA VULGARIS.—THE QUINCE TREE.

CLASS XII. ICOSANDRIA.—ORDER IV. PENTAGYNIA.

NATURAL ORDER, POMACEÆ.—THE APPLE TRIBE.

FIG. (a) section of the fruit; (b) a seed.

THE Quince-tree is a native of the rocky banks of the Danube, and is naturalized in the hedges of Germany. Dr. Sibthorp found it wild in the northern parts of Greece, in which country it still retains the ancient name *κυδωνία*, so called from Cydon, a town in Crete, where it grew. Thunberg found it growing in Japan, where it is called *umbats*. It was among the first of the exotic fruits cultivated in England, where it blossoms in May or June, and ripens its fruit in November.

The tree is of low growth, much branched, and generally distorted. The leaves are roundish or ovate, entire, varying in size, smooth, and of a dusky green colour above, paler and downy beneath, and stand upon short foot-stalks. The flowers are large, solitary, and of a pale rose-colour, or white; the calyx is superior, villous, persistent, and divided into five spreading segments: the corolla is composed of five petals; these are concave, roundish, and inserted into the calyx: the filaments are about twenty, awl-shaped, shorter than the corolla, and support yellow anthers: the germen is orbicular, with five slender styles, and simple stigmas. The fruit is large, varying in shape, yellow, downy, umbilicated, and when ripe has a peculiar fragrant odour, and a very austere acidulous taste; each of its cells contains two or three ovate, angular, reddish brown, cartilaginous seeds, ranged horizontally.

There are different varieties of the fruit: as the globular, or apple-quince; oblong, or Portugal quince; and the pear-shaped, or pear-quince. The Portugal quince is the best, but the fruit is produced sparingly. The quince-tree is propagated by layers, by suckers, or by cuttings. It thrives best in a moist soil, but the fruit is superior in a dry one. The quince is supposed by some persons to be the golden apple of the Hesperides, so famous in ancient fable.

From the largeness of this fruit, and its splendid colour, it is not improbable that it was the same with the apples of the Hesperides; for Galesio, in his treatise on the orange, has shewn that the orange tree was unknown to the Greeks, and that it did not naturally grow in those parts where the gardens of the Hesperides were placed by them. The fruit of the quince, however useful and ornamental it may be in some respects, does not warrant such honours, and in truth has not continued to receive them; for the French, who have paid great attention to its cultivation, particularly for grafting pears upon its stocks, call the quince-tree "*coignassier*," probably, according to Duhamel, because the disagreeable odour of the fruit requires that it should be placed in a corner (*coin*) of the orchard or garden. In the south of France, particularly on the borders of the Garonne, the quince is very extensively grown; and the peasants prepare from it a marmalade which they call *cotignac*. The term marmalade is derived from the Portuguese name for the quince, *marmelo*. Gerard says, that in his time quince-trees were planted in the hedges of gardens and vineyards; and marmalade, two centuries ago, seems to have been in general use, principally from a belief that it possessed valuable medicinal properties.

QUALITIES AND USES—The seeds are inodorous, nearly insipid, and abound with an impure mucilage, which they yield to boiling water. One drachm makes six ounces of a nearly colourless transparent mucilage, resembling in consistency the white of egg; which is occasionally prescribed as a demulcent in gonorrhœa, tenesmus, dysentery, and in apthous affections and excoriations of the mouth and fauces; in the latter case it is generally combined with borax and honey. A diluted solution of it injected beneath the eye-lids is recommended by Dr. Thompson, for obtunding the acrimony of the discharge in violent inflammations of the eye. It is the most agreeable of all the mucilages; but is apt to spoil and become mouldy in a short time.

In its raw state the fruit is not eatable; but when prepared, it becomes mild, and to many persons

highly grateful. A small portion of it added to stewed or baked apples is useful for giving pungency and flavour. The expressed juice taken in small quantities is cooling, antiseptic, and astringent, useful in nausea and vomiting, as well as in some kinds of diarrhœa; by boiling, it loses its astringency. Formerly the juice was directed in the London Pharmacopœia to be made into a syrup; but the only preparation of the quince which it now directs, is the decoction of the seeds. An elegant sweetmeat or marmalade (*Miva cydoniarum*) is prepared by boiling the pulp over a gentle fire with an equal weight of sugar.

OFF. PREP.—Decoctum Cydoniæ, L.

"Chill is thy breath, pale autumn," sings the poet, though, had not poets called this season pale, we might have termed it the rosy, or the golden autumn. The berries which hang about the autumn trees may vie with the blackness of the jet, or the redness of the coral or ruby. There are the berries of the briony and the honeysuckle, of a deep and soft red; and the more brilliant scarlet clusters of the common nightshade; and the glossy red bunches of the dogwood; and the mountain-ash; and the wayfaring-tree; and all the numerous hips and haws, upon which revel the merry songsters, and the meek woodmouse, and the many little creatures for whom a feast has been spread with a liberal hand. A deep yellow tint is also the predominating colour among autumn flowers, almost all our native blossoms at this season having either some tinge of redness, or wearing that deep yellow in which, as the Chinese say, the sun loves to array himself; while the deep and varied colour of the wild wood and the shrubbery, delight the artist and the lover of nature, who pause in their walks to mark, in the foliage, the rich green tint, the bright yellow, the brown, or the crimson.

Our native plants often display a considerable degree of this latter hue upon their stems and leaves at the decline of the year. Some few, like the red-cornel, have their foliage altogether red; others have here and there,

"The one red leaf, the last of its clan,
That dances as often as dance it can;
Hanging so light, and hanging so high,
From the topmost twig that looks up at the sky."

In the early ages of Christianity the custom prevailed of carrying evergreens with the corpse to the burial-ground, and depositing them in the grave; implying that the soul was ever-living, and that the body, though now cut down, should spring up again, in eternal youth and beauty, at the day of the resurrection. When the ancient Jews returned from the ceremony of placing their friends in the house for all living, as they expressively called their place of interment, they were accustomed to pluck off the grass two or three times, and, throwing it behind them, to exclaim in the words of the Psalmist, "They shall flourish out of the city like grass upon earth." This practice appears to refer to the resurrection of the bodies of the departed.

The Hindoos place flowery offerings on the shrines of their deities; and Forbes, in his Oriental Memoirs, thus speaks of an interesting custom, "In the Mahommedan cemeteries of Guzerat are displayed the amiable propensities of the female character. To those consecrated spots the Mahommedan matrons repair, at stated anniversaries, 'with fairest flowers to sweeten the sad grave.' The grand tombs are often splendidly illuminated, but the meanest heap of turf has its visitors, to chant a requiem, light a little lamp, suspend a garland, or strew a rose, as an affectionate tribute to departed love or separated friendship."

The Turks in their burying-places, which they call "Cities of Silence," perforate the slabs which cover their graves, and through these openings spring beautiful flowers, which shed their sweets around. These flowers are carefully tended and kept from weeds by the Turkish females. The cypresses, too, with their dark gloomy foliage, mingle with other trees, and by their odour counteract the unpleasant effects which cemeteries in hot climates are so apt to produce, when the coffinless dead are buried at but little depth from the surface of the ground.

The Chinese plant flowers and shrubs about the places destined for the last reception of their families; and in many instances approach them through avenues of beautiful and lofty trees. The Germans place upon every grave little clusters of primroses, violets, lilies, and forget-me-nots. The celebrated cemetery of Père la Chaise at Paris presents much of picturesque beauty in its arrangement; and yet the bereaved mourner would generally feel more willing that the remains of his friend should lie in the peaceful churchyard of the village, than in a spot so much visited by the gay and thoughtless.



Begonia Martiana C.

BEGONIA MARTIANA.—VON MARTIUS' ELEPHANT'S EAR.

CLASS XXI. MONCECIA.—ORDER VI. POLYANDRIA.

NATURAL ORDER, BEGONIACEÆ.*

GENERIC CHARACTERS.—Male flowers—Calyx wanting. Corolla polypetalous. Petals commonly four, unequal. Female flowers—Calyx wanting. Corolla with from four to nine petals, generally unequal. Styles three, bifid. Capsule triquetrous, winged, three-celled, many seeded.

SPECIFIC CHARACTER.—Plant a perennial. Stem smooth, striated, semi-translucent, covered with a thin glaucous bloom. Leaves obliquely ovate, deeply and unequally indented at the margins, smooth, shining green. Petioles longer than the leaves. Peduncles usually two-flowered, more than twice as long as the pedicel. Flowers large, rich crimson purple. Petals serrated at the edges.

With the exception of *B. coccinea*, and one mentioned by Mr. Hartweg, there is perhaps no species of *Begonia* yet known that produces flowers of a finer colour than the present. Most of the members of the genus have blossoms varying from a pure white to a pale blush; but in the species before us, we have a rich and delicate crimson pink.

It is a plant of perennial duration, with tuberous roots, which demand considerable care and watchfulness to preserve their vitality through the winter. The stems are beautifully striated and transparent, like those of the Balsam, and are clothed with neat foliage of a rather diminutive size. The blossoms are large, and sufficiently abundant to impart a most inviting aspect; and the smallness of the leaves only becomes a fault when the plant is kept in a dry atmosphere, or otherwise mismanaged during the growing season.

We have little to communicate respecting its native country. It is said to be a production of Brazil; from whence, according to our Botanical Catalogues, it was transmitted to England in 1829.

Like many of its congeners it soon betrays the effects of injudicious or careless treatment. We point to this, more especially, because its attractiveness is so intimately connected with, and dependent upon, a highly cultivated state, that it elicits little admiration in a converse condition. Under unfavourable circumstances, the branches become straggling and attenuated, the internodes lengthen without acquiring a corresponding vigour, and if flowers are formed at all, they are scanty both in numbers and magnitude.

To enable it to form a compact spreading specimen, three or four principal stems should be allowed in a pot; these, under genial culture, will reach nearly eighteen inches in height, and to make a good specimen, they should measure nearly as much across. It is necessary to be circumspect in the application of water at the commencement of growth, for the young shoots are then extremely susceptible of injury from a surplus of moisture; but as the plant acquires the full renewal of its vegetative activity, copious supplies will be required almost daily. A stove or warm pit with bottom-heat, screened from the glare of the mid-day sun, will be the fittest place till the flowers begin to form, when it may be removed to an intermediate house, where more light is admitted.

The wood-path is carpeted over with leaves,
The glories of Autumn decay;
The Goddess of Plenty has bound up her sheaves,
And carried the harvest away,

With dissonant guns, hills and valleys resound,
The swains through the coppices rove;
The partridges bleed on the dry stubble ground,
The pheasants lie dead in the grove.

Gloomy as this month usually is, yet there are some intervals of clear and pleasant weather; the mornings are occasionally, sharp, but the hoarfrost is soon dissipated by the sun, and a fine open day follows.

A few soft days succeed
Of pleasing mildness; but the varying storm
By fits prevails, or, wrapped in terror, whirls
The last, the lingering honours from the grove.

The trees are now stripped of their foliage. The separation of their leaves from their branches is termed the fall: and in north America, the season in which this takes place is universally known by that name. The falling of leaves is not always in consequence of the injuries of autumnal frosts, for some trees

* We are indebted to that charming work the Magazine of Botany for the figure and description.

have their appropriate period of defoliation, seemingly independent of external causes. The lime (*tilia europea*) commonly loses its leaves before any frost happens; the ash seems, on the contrary, to wait for that event; and at whatever period the first rather sharp frost takes place, all its leaves fall at once. The fall of the leaf can be considered only as a "sloughing or casting off diseased or worn-out parts," whether the injury to their constitution may arise from external causes or from an exhaustion of their vital powers. Hence a separation takes place, either in the foot-stalks, or more usually at its base, and the dying part quits the vigorous one, which is promoted by the weight of the leaf itself, or by the action of autumnal winds upon its expanded form. Sometimes, as in the horn beam, the beech, and some oaks, the swelling of the buds for the ensuing season is necessary to accomplish the total separation of the old stalks from the insertion.

How fall'n the glories of these fading scenes!
The dusky beech resigns his vernal greens;
The yellow maple mourns in sickly hue,
And russet woodlands crown the dark'ning view.
Dim, clust'ring fogs invade the country round;
The valley, and the blended mountain ground,

Sink in confusion: but with tempest wing,
Should Boreas from his northern barrier spring,
The rushing woods with deaf'ning clamour roar,
Like the sea tumbling on the pebbly shore:
When spouting rains descend in torrent tides,
See the torn zig-zag weep its channelled sides. WHITE.

Leaves undergo very considerable changes before they fall; ceasing to grow for a very long time previous to their decay, they become gradually more rigid and less juicy, often parting with their pubescence, and always changing their healthy green colour to more or less of a yellow, sometimes a reddish hue. "One of the first trees that becomes naked is the walnut; the mulberry, horse-chestnut, sycamore, lime, and ash, follow. The elm preserves its verdure for some time longer; the beech and ash are the latest deciduous forest trees in dropping their leaves. All lopped trees, while their heads are young, carry their leaves a long while. Apple-trees and peaches remain green very late, often till the end of November: young beeches never cast their leaves till spring, when the new leaves sprout, and push them off; in the autumn, the beechen leaves turn of a yellow deep chestnut colour.

The effect of a "whirl blast," or sudden gust of wind, accompanied with hail (not unfrequent at this season,) on the falling leaves, is thus prettily and naturally delineated by the poet of the mountains:—

But see! where'er the hailstones drop,
The withered leaves all skip and hop;
There's not a breeze—no breath of air—
Yet here, and there, and every where,
Along the floor, beneath the shade,
By those embowering hollies made,

The leaves in myriads jump and spring,
As if with pipes and music rare
Some Robin Goodfellow were there,
And all those leaves in festive glee
Were dancing to the minstrelsy.

WORDSWORTH.

A tree has ever been considered as an emblem of life; and in this view, this pleasing object in nature, which we meet with in every direction, is replete with instruction. The contemplative mind regards it with peculiar interest, and derives from it no inconsiderable improvement. The elegant 'Gilpin' has availed himself of this striking resemblance in the following beautiful reflections:—

"As I sat carelessly at my window (he observes,) and cast my eyes upon a large acacia which grew before me, I conceived that it might aptly represent a country divided into *provinces, towns, and families*. The large branches might hold out the first—the smaller branches connected with them, the second—and those combinations of collateral leaves which specify the acacia might represent families composed of *individuals*. It was now late in the year, and the autumnal tints had taken possession of great part of the tree.

As I sat looking at it, many of the yellow leaves (which having been produced earlier, decayed sooner) were continually dropping into the lap of their great mother. Here was an emblem of *natural decay*—the most obvious appearance of mortality.

As I continued looking, a gentle breeze rustled among the leaves. Many fell, which in a natural course might have enjoyed life longer. Here *malady* was added to decay.

The blast increased, and every branch which presented itself bowed before it. A shower of leaves covered the ground. The cup of retribution, said I, is poured out upon the people. Pestilence shakes the land. Nature sickens in the gale; they fall by multitudes. Whole families are cut off together.

Among the branches was one entirely withered. The leaves were shrivelled, yet clinging to it. Here was an emblem of *famine*. The nutriment of life was stopped. Existence was just supported, but every form was emaciated.

In the neighbourhood stretched a branch not only shrivelled and withered, but having been more exposed to winds, it was almost entirely stripped of its leaves. Here and there hung a solitary leaf just enough to show that the whole had lately been alive. Ah! said I, here is an emblem of *depopulation*. Some violent cause hath laid waste the land. Towns and villages, as well as families, are desolated; scarcely ten are left alive to bemoan thousands.

How does every thing around us bring its lesson to our minds! *Nature is the great book of God*. In every page is instruction to those who will read. Mortality must claim its due. Death in various shapes hovers round us,—Thus far went the heathen moralist. He had learned no other knowledge from these perishing forms of nature, but that men, like trees, are subject to death."



Ranunculus Flammula

RANUNCULUS ACRIS.—UPRIGHT MEADOW CROWFOOT.

CLASS XIII. POLYANDRIA.—ORDER VII. POLYGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

FIG. (a) represents a single petal detached to show the nectary; (b) a stamen with its anther.

AMONG the numerous species of vegetables, natives of Britain, few are more familiarly known than those of the Ranunculi. They are herbaceous plants, all or at least most of them, possessing acrid qualities, and generally affecting cold or temperate climates. Sixty one species are enumerated by Willdenow in the 14th edition of *Systema Vegetabilium*, but the number has of late been considerably augmented, and now nearly two hundred are known. Fifteen are natives of our island; and of these the two species figured, and the *bulbosus* are the most common, occupying a considerable space in rich pastures, and propagating themselves with great facility. Early in the spring, and during the greater part of the summer, the flowers occur everywhere; hence the farmer and the horticulturist are continually employed in their destruction, for they contribute little or nothing to the support of man and the larger quadrupeds.

The root of the *Ranunculus acris*, is perennial and somewhat bulbous, with several long simple fibres. The stem is two feet high, erect, round, hollow, leafy, beset with minute hairs, branched towards the top, and many-flowered. The radical leaves are oblong, upright, hairy, footstalks, in three or five deep lobes, which are variously subdivided and toothed. The leaves on the stem are of the same structure; divided into fewer and narrower segments; the uppermost are much smaller, and cut into three linear entire lobes, or sometimes entirely simple and linear. The stalk and branches are terminated by bright yellow flowers, one or two together on round even stalks, covered with close hairs, and *not* furrowed. The calyx is pale greenish-yellow, or coloured like the corolla, and formed of five ovate, concave, spreading deciduous leaves, which are clothed with a downy pubescence and tipped at the apex with a dark brown spot. Within the calyx are five obtuse petals, polished on their inner surface, and furnished at the base with the nectary, which is a small pore, covered by a scale. The filaments are numerous, (from forty-eight to ninety-three,) not half the length of the petals, with oblong heart-shaped stigmas. In the centre of the corolla are many germens, collected into a head, and each furnished with a small reflected stigma. The akenia are lenticular, smooth, with a small, slightly curved point.

Linnaeus gave this species the name "*Acris*," on account of its being supposed to be acrid and poisonous in an eminent degree. Mr. Curtis says, "that even pulling up the plant, and carrying it some little distance, has produced a considerable inflammation in the palm of the hand; that cattle in general will not eat it, but that sometimes, when they are turned in a hungry state into a new field of grass, or have but a small spot to range in, they will feed on it, whereby their mouths become sore and blistered. According to Linnaeus, sheep and goats eat it; but kine, horses, and swine refuse it. When made into hay it loses its acrid quality; but then it seems to be too starchy and hard to afford much nourishment; if it be of use, it must be to correct, by its warmth, the insipidity of the grasses." It has been supposed to act as a condiment, and hence to be serviceable when taken in moderate quantities along with other more bland and nutritious herbs.

RANUNCULUS FLAMMULA.

LESSER SPEAR-WORT CROWFOOT.

THIS species of *Ranunculus*, which is commonly called in English the small or lesser Spear-wort, grows plentifully throughout Europe, in marshy places, and especially in the wet and more boggy parts of heaths and commons, where it flowers during most part of the summer.

The root is perennial, consisting of several long simple fibres, issuing from the lower joints of the stem. The stem is a foot high or more, often reclining partly, or entirely decumbent at the base; branched, leafy, round, hollow, smooth, and frequently tinged with purple. The whole plant is generally smooth, except a variety the leaves of which are said to be hairy at the edges, and the upper part of the stem is sometimes a little downy. The radical leaves are ovate-lanceolate, pointed at each end, standing on long foot-stalks, which are hollow on one side and flattened; those on the stalk lanceolate, alternate, standing on shorter foot-stalks, which are dilated and sheathing at the base; the uppermost, and those next the flowers, linear; all of them smooth, sometimes perfectly entire or more or less toothed. The flowers are terminal as well as opposite

to the leaves, and stand on round erect stalks, without bracteas. The corolla is of a bright yellow colour, composed of five roundish, somewhat concave, heart-shaped petals, with short claws and a very minute nectary. The Calyx consists of five ovate, obtuse, slightly villous, concave, yellowish, deciduous leaves. The stamens are numerous, and the other parts of the flower resemble those of the preceding species.

GENERAL QUALITIES OF THE RANUNCULI.—The roots of the *R. bulbosus* appear to consist of albumen, mixed with ligneous fibre. If the root be macerated in cold water, it gives a solution of this substance, which coagulates in floccules on the application of heat; and undergoes the same process slowly on the admixture of alcohol. The juice of some yield nitric acid; but the most interesting constituent in most of the species of ranunculus is the acrid principle, which pervades every part of the plant in its green state. Like the acrimony of the arum, it is volatile, and disappears in drying, or upon the application of heat. It differs, however, in not being destroyed by a moderate heat, and in being fully preserved by distillation. Professor Bigelow subjected various species of this family to this experiment, and always found the distilled water to possess a strong acrimony: while the decoction, and portions of the plant remaining in the retort, were wholly destitute of this property. This distilled water, when first taken into the mouth, excited no particular effect; but after a few seconds, a sharp, stinging sensation was produced. When swallowed, a great sense of heat took place in the stomach. Some distilled water of the *R. repens*, was kept in a close-stopped phial for several months, and retained its acrimony undiminished. In winter time it froze, and on thawing lost this property.

PROPERTIES AND MEDICAL USES, &c.—Both ancient and modern writers on botany, and materia medica, agree in attributing to many species of the genus *Ranunculus* a corrosive and poisonous quality. In several, it abounds in such a degree as, when applied externally, in a recent state, to excite vesications, and ulceration of the parts, which often assume a malignant or gangrenous disposition; and taken internally they prove poisonous, by inducing vomiting, inflammation of the stomach, and the usual consequences of acrid poisons. These qualities, according to Dr. Pulteney, are particularly manifest in the recent plant, while in its highest vigour before flowering; and more intensely in the germen of the flower itself, and in the petals of some.

The poisonous species that are indigenous and common in England, are the *R. Flammula*; *R. bulbosus*; *R. acris*; *R. sceleratus*; and the *R. arvensis*; Of these the *Flammula*, *bulbosus* and *sceleratus*, are judged to be the most acrimonious.

Before the introduction of *Cantharides*, the acrid *Ranunculi* were all, in their turn, used as vesicatories, and Haller tells us, that the *R. flammula* is still in use as such in some parts of France: and as the two species we have figured have obtained places in the materia medica of the Dublin college, we suppose they are intended to be employed for this purpose amongst the paupers of Ireland. Gilibert assures us, that the *R. bulbosus* vesicates with less pain than the Spanish *flies*. He therefore gives it a decided preference as an epispastic. Other authors allow these properties in the *Ranunculi*; and state that they exert their effects sooner than the *Cantharides*; but as their action is uncertain, and as many instances are recorded by Murray and others, of their producing ill-conditioned ulcers, they are not employed in this country. The latter author states, that a slice of the fresh root of *R. bulbosus* placed in contact with the inside of the finger, brought on a sense of pain in two minutes. When taken off, the skin was found without redness, and the sense of heat and itching ceased. In two hours, however, it returned again, and in ten hours a full serious blister was raised. This was followed by an ulcer of bad character, and difficult to heal. He remarks, that if the application is continued after the first itching, the pain, and subsequent erosion are much greater. And it is a well-known fact, that soldiers, and mendicants, often resort to these plants to produce ulcers on their legs; the former to procure their discharge, and the latter to excite commiseration.

With a view to their external stimulation they have been used advantageously in rheumatism, in hip disease, hemicrania, and fixed pains of various descriptions. Amongst the old practitioners who have recorded instances of their effects, are Baglivi, Stork, and Sennertus. A curious practice formerly prevailed in several countries of Europe, of applying the ranunculus to the wrists, or fingers, for the cure of intermittent fevers. This is mentioned by Van Swieten, Tissot, and some others. In *hemicrania* it was applied to the head, and in this case did not produce a discharge, nor break the skin; but occasioned tumefaction of the hairy scalp. Chesnau, quoted by Murray, advises that the ranunculus be applied to a small surface only, and through a perforation of adhesive plaster, to keep it from spreading. From want of this caution, he had known extensive inflammation to arise, and spread over a great part of the face, neck, and breast.

The burning sensation which the *Ranunculi* excite in the mouth when chewed, extends, as we have already observed to the stomach, if they are swallowed. Krapf states, that a small portion of a leaf, or flower of *R. sceleratus*, or two drops of the juice, excited acute pain in the stomach, and a sense of inflammation in the throat. He gave a quantity of the juice to a dog, which produced vomiting and great distress; and the animal being killed, was found to have the stomach inflamed and contracted.



Rhamnus cathartica.

RHAMNUS CATHARTICUS.—THE BUCKTHORN.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, RHAMNEÆ.—THE BUCKTHORN TRIBE.

FIG. (a) represents a male flower; (b) female flower; (c) a stamen; (d) the fruit; (e) the section of a berry, showing the four cells; (f) the seed.

BUCKTHORN is, perhaps, as well known among herbalists and rustic practitioners as any indigenous medicinal plant of Great Britain. It has been long celebrated for the cathartic qualities of its berries, which are gathered by the common people in some places in considerable quantities, and the juice expressed for the use of the apothecaries. It grows wild in hedges, groves, and thickets, flowering in May, and ripening its fruits in September. It is rather uncommon in the neighbourhood of London; but Dr. Milne found it in some lanes betwixt Plumstead and East Wickham; in a chalk-pit betwixt Gravesend and Chatham, and in copses above Purfleet. We have also observed it in great abundance in the hedges near Thames Ditton; and Mr. W. Anderson, of the Botanic Garden, Chelsea, informs us it grows plentifully about Norwood, in Surrey.

Buckthorn is a shrub, which rises to the height of seven or eight feet, with a smooth dark-brown bark, and yellowish wood. The branches are alternate, or nearly opposite, spreading, and each terminating in a strong spine, after the first year. The leaves are simple, entire, ribbed, smooth, finely serrated, and of a bright green colour; the earlier ones downy, and in tufts from the flowering buds; those on the young shoots, opposite, and smooth. The flowers are small, sustained on pedicels, and stand in thick clusters on the extremities of the last year's branches. They are generally of different sexes on distinct plants; the fertile flowers, with the rudiments of stamens, narrow petals, and a deeply four-cleft style; the barren ones with an abortive germen, and broader petals. The anthers are small, roundish, on short awl-shaped filaments, and inserted in the mouth of the four-cleft calyx, opposite to each petal. The berries, which succeed the germen in the female flowers, are black when ripe, globular, of the size of a pea, and contain a green bulb, with four cells, and as many seeds, that are smooth, elliptical, convex on one side, and flattened on the other. By this last character they are easily known by druggists, from the fruit of the *Rhamnus Frangula*, which has only two seeds, and is supposed to be less active.

There are two British species of Buckthorn: Common Buckthorn, already described, and Alder Buckthorn, or Berry-bearing Alder, (*R. Frangula*.) The latter is a shrub, which like the preceding, grows to a considerable height, with smooth entire leaves, and flowers in May. It is destitute of thorns; and the berries, which ripen in July, are dark purple, each containing two large yellowish seeds. This plant formerly obtained a place in the foreign dispensatories, under the name of *Frangula*. The inner bark, the only part used in medicine, when dried is a drastic purgative; emetic, when green. The berries gathered before they are ripe dye wool green, and yellow; when ripe, blue-grey, blue, and green. The bark dyes yellow, and, with preparations of iron, black.

The species usually cultivated, or introduced as objects of curiosity are,—the Turkey-berry buckthorn, (*R. infectorius*;) the shining-leaved buckthorn, or common jujube, (*R. zizyphus*;) the common alaternus, (*R. Alaternus*;) the pubescent rhamnus, or Bahama-red-wood, (*R. colubrinus*;) the common Christ's thorn, (*R. Paliurus*;) the pointed-leaved buckthorn, (*R. anoplia*.)

The first is a native of the south of Europe. It is frequent in rough stony places in Greece, and is regarded by Dr. Sibthorp as the *Λαύρος*, *Lycium*, of Dioscorides. The unripe berries are much used for dyeing, and are imported into England under the name of French berries. They are chiefly used for topical dyeing in calico printing; but the colour which they communicate is very fugitive; they are also used to give the colour to Turkey leather, or yellow morocco. This shrub is very nearly related to the *R. catharticus*, but grows procumbent, not erect, and the leaves are smaller and narrower.

The fruit of the shining-leaved buckthorn, or common jujube, is sold in the market at Canton during the autumn. It is about the size of an olive, of a yellowish-red colour, sweetish and clammy. In Italy and Spain it is served up at table, in desserts during the winter season, as a dry sweetmeat. It was formerly kept in the shops, under the name of *jujubes*, and recommended in coughs and other pulmonary complaints, but has now fallen into disuse in England, although in France it is still esteemed.

The natives of Siberia use the wood of an unarmed species, the *Rhamnus Erythroxylon*, or Siberian Red-wood, to make their images, on account of its hardness and colour. According to Osbeck, the poor in China, where the shrub is a native, use the leaves of the *R. (now Segeretia) Theezans*, as a substitute for the genuine tea, and it is even called by them *Tia*.

PALIURUS ACULEATUS, the Christ's-thorn, is a very common plant in Palestine, and is found in most sterile places bordering on the Mediterranean Sea. Tradition affirms that the Saviour's Crown of thorns was made of the plant branches of this spiny plant, and none could be more fitting for the brutal purpose to which it is said to have been applied. Hasselquist, however, is of opinion that a species of *Zizyphus*, hence called *Z. spina-Christi*, is the true Christ's-thorn.

The fruit of *P. aculeatus* resembles a head with a broad brimmed hat on; and the French, from its very singular appearance, call the tree *Porte-chapeau*. The seeds are sold in the herb and physic shops of Constantinople under the name of *Xalle*. The *hakims* or native doctors prescribe them in many complaints, and they are used also as a dye. The plant itself is one of the commonest thorns of the hedges in many parts of Asia, and its flexible spiny branches form fences of a most impassable kind.



Genista bracteolata.

GENISTA BRACTEOLATA.—RACEMOSE GENISTA.

CLASS XVI. MONADELPHIA.—ORDER II. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.

1, Calyx. 2, Standard. 3, Wing. 4, A. Petal of the Keel. 5, Stamens and Pistil. 6, The whorl of stamens opened.
7, A. flower with a double standard.

CHARACTER OF THE GENUS, GENISTA. Calyx bilabiate, with the upper lip bipartite, and the inferior tridentate, or else five-lobed, with the three inferior lobes united nearly to the apex. Vexillum oblong-oval. Keel oblong, straight. Stamens monadelphous. Legume flatly-compressed, or more rarely somewhat turgid, many-seeded, rarely few-seeded, without glands.

DESCRIPTION OF THE SPECIES, GENISTA BRACTEOLATA. A large shrub, with numerous pendant branches, flowering profusely from almost every lateral branch. Branches angular. The whole plant covered with short appressed silky tomentum. Leaves trifoliate, on moderately long petioles, the leaflets obovate-lanceolate, slightly mucronate, darker above, more silky below, stipules very small, subulate. Racemes moderately crowded, rather short; the pedicels short, with a linear lanceolate bract at their base, or about half way up, and two other very minute ones close to, and alternating with, the lips of the calyx. Calyx with the upper lip bipartite, forming two equal teeth, the lower lip about the size of one of the divisions of the upper, somewhat depressed, with three very minute teeth. Flower bright yellow. Standard oblongo-subcordate, emarginate, with a very short claw. Wings obliquely linear-obovate, with narrow linear twisted strap-shaped claws. Keel ovate-oblong, straight, enveloping (at first) only the base of the stamiferous tube, but ultimately drooping, and almost entirely excluding it, its petals somewhat smaller and paler, but very like the wings. Stamens monadelphous, alternately long and short. Ovary somewhat compressed, hairy, containing about nine ovules.

Dr. Lindley having kindly identified our plant with *Genista bracteolata* we can have no hesitation in assigning to it the name of that species. In the brief descriptions of Decandolle's *Prodromus* it is impossible to find characters sufficiently precise for separating species so closely allied as this and *Genista candicans*, and perhaps further enquiry may, after all, prove them to be identical. At least the figure in the Botanical Register, with its elongated racemes of scattered flowers, scarcely accords with our much more condensed and shorter ones, or even with one of Link's specific characters, "*racemis brevibus*;" neither can the leaflets of our plant be considered "*obtusissima*." Such discrepancies in descriptions make it difficult for us to feel satisfied, when comparison with authentic specimens would probably leave us in no doubt. The species seems inclined to produce double flowers, at least we found some which had a double standard, and where the upper lip of the calyx was subdivided into three segments.*

The plant was raised from seed, by R. Bevan, Esq., near Bury St. Edmunds, under the name of *Cytisus Chrysobotrys*, but he is not aware from whence the seed was obtained. The specimen figured in the Botanical Register was raised from seeds gathered by Mr. Webb at Teneriffe. It is probably of easy culture; and, flowering so early as the first week of March, is a great acquisition to the greenhouse.

Gardens, are amongst the most delightful things which human art has prepared for our recreation and refreshment. To say nothing of the common-places, that a garden was first constructed by God himself,—that in the shades of a glorious garden our first parents were placed by him,—that our Saviour delighted to walk in a garden,—that in a garden he suffered his agony, and that in a garden he was buried; there are a thousand reasons why gardens should be highly valued, especially by those who are fond of the country. Lovers of nature cannot always stroll abroad to those beauties and delights which lie scattered far and wide; the physical impediments of time and space—the severities of winter, the dews, the hasty storms, and the strong heats of summer, lie between them and their enjoyment, especially if they be of the delicate sex. But into a garden—a spot into which, by the magical power of science, taste and adventurous enterprise, the sweetest and most beautiful vegetable productions, not only of our own country, but of the whole globe, are collected, they may step at all hours, and at all seasons; yes, even through the hours of night, when

* The Botanist.

many glories of Nature are to be witnessed; her sweetest odours are poured out; her most impressive and balmy quiet is sent upon earth. There, fearless of any "pestilence that walks in darkness," the gentlest and most timid creature may tread the smooth path of the garden, and behold all the calm pageantry of the glittering host of stars, of moonlight and of clouds. The bowers of a good modern garden invite us from the fierce heat of noon to the most delicious of oratories, in dry summer eves, to the most charming place of social enjoyment. A garden, with all its accompaniments of bowers, secluded seats, shrubberies, and hidden walks, is a concentration of a thousand pleasant objects, and the field of a multitude of animating pursuits. The rarest beauties of the vegetable world are not only there congregated, heightened in the richness and splendour of their charms, but there many of them are actually created.

The feeble invalid and feebler age, they who cannot lay hold on Nature in her amplitude, though they may anxiously and intensely thirst to renew on heath and mountain, the enchantments of past days, can there grasp a multitude of her delights at once. The sedentary man,

Secured but not buried, and with song
Cheering his days,

there finds the most congenial relaxation, the most restorative exercise ever at hand. The lover of all bright hues and graceful forms, of all delicate and spicy aromas of curious processes and wonderful phenomena, of all that is soothing to the mind, and pleasant to the vision and the taste, there walks in a fairy-land of his own creation. There the sun shines tempered by the coolness of whispering branches; the breeze blows softly, charged with fragrance; the dews fall to refresh and awaken sleeping odours, and birds bring from their wilder haunts their melodies. To the fair creature, who, like Eve, is a lover of flowers, what a perpetual source of affectionate interest, of hopes and fears, and speculations of delightful labours, cares and watchings, is found in a garden! Poets have always delighted to describe their favourite heroines amid the amenities of gardens, as places peculiarly accordant with the grace and gentle nature of woman. How beautiful is that passing view which Chaucer gives us of Emilia, in Palemon and Arcite!

Emily ere day
Arose and dress'd herself in rich array;
Fresh as the month, and as the morning fair,
Adown her shoulders fell her length of hair;
A riband did the braided tresses bind,
The rest was loose and wanton'd in the wind.
Aurora had but newly chased the night,
And purpled o'er the sky with blushing light,
When to the garden walk she took her way,
To sport and trip along in cool of day,

And offer maiden vows in honour of the May.
At every turn she made a little stand,
And thrust among the thorns her lily hand
To draw the rose; and every rose she drew,
She shook its stalk, and brush'd away the dew;
Then party-colour flowers of white and red
She wove, to make a garland for her head:
This done, she sung and caroll'd out so clear,
Then men and angels might rejoice to hear.

But how much more beautiful is Milton's picture of our first mother, pursuing her pleasant labours in the first garden, issuing from her bower at Adam's call,—

Awake! the morning shines, and the fresh field
Calls us; we lose the prime to mark how spring
Our tender plants, how blows the citron grove,

What drops the myrrh, and what the balmy reed;
How Nature paints her colours, and what the bee
Sits on the bloom, extracting liquid sweet:

or to her sylvan home, as we see her

Just then return'd at shut of evening flowers:

or, in the midst of that anguish, when, hearing pronounced her banishment from Eden, she exclaimed "with audible lament,"

Oh, unexpected stroke worse than of death!
Must I thus leave thee, Paradise? thus leave
Thee, native soil! these happy walks and shades,
Fit haunt of Gods? where I had hoped to spend,
Quiet, though sad, the respite of that day
That must be mortal to us both. O flowers,

That never will in other climates grow,
My early visitation and my last
At even, which I bred up with tender hand
From the first opening bud, and gave ye names!
Who now shall rear ye to the sun, or rank
Your tribes, and water from the ambrosial fount?

But Milton, as in other respects, so he is unrivalled in his painting of garden scenery. One cannot but remark, how in that, as in every thing else, he outwent his own times. In those days of tortured trees, and stiff formal fences and garden-plots, what a magnificent but free, and naturally beautiful wildness he has sketched in the 4th Book of Paradise Lost! From him, and Lord Bacon, whose taste, however, was far inferior, we may date the regeneration of English pleasure-gardens; and now such delightful spots have we scattered through the country, that the East from which we borrowed them can scarcely rival them. The imaginative mind cannot contemplate the assemblage, which from all far-off lands, is there brought together without being carried by them into their own fair regions; nor the reflective one, without being struck with the innumerable benefits we have derived from art and commerce.

Sinapis.



alba.

nigra.

SINAPIS ALBA.—WHITE MUSTARD.

CLASS XV. TETRADYNAMIA.—ORDER II. SILIQUOSA.

NATURAL ORDER, CRUCIFERÆ.—THE CRUCIFEROUS TRIBE.

Fig. (a) represents a lower leaf; (b) the stamen, pistil, and glands; (d) a pod or silique; (e) a seed to show the incumbent pleurorhizous radicle.

THERE are two species of Mustard admitted into our national pharmacopœias; the White Mustard, *sinapis alba*, and the Black, or Common, *sinapis nigra*. Both are indigenous annuals, growing naturally in fields, and both have been cultivated here, and in most parts of Europe, for an unknown period. The White Mustard flowers in June, and ripens its seed in July.

White Mustard has a small tapering root. The stem is erect, branched, rough, with slender reflexed hairs, and rises to the height of about two feet. The leaves are lyrate, deeply cut, roughish, and of a bright green colour. The flowers are yellow, and form terminal racemes, each having four petals disposed in the form of a cross. The leaves of the calyx are linear, green, and spread horizontally. The filaments, germen, and pistil, resemble those of the following species. The flowers are succeeded by short, two edged, very tumid pods, spreading on nearly horizontal stalks, rough, with numerous minute reflexed bristles, interspersed with larger upright ones; the beak is longer than the pod, is bristly, sword-shaped, curved upwards, and terminated by the compressed style and cloven stigma. The seeds are rather large, few, and of a pale yellowish brown colour.

SINAPIS NIGRA.—COMMON BLACK MUSTARD.

Fig. (c) represents a pod or silique of common mustard burst open, showing the situation of the seeds.

COMMON MUSTARD sends up a smooth, branched stem, which is taller and more spreading than the preceding, to the height of three or four feet. The lower leaves are large, lyrate, rough, variously lobed and toothed; the upper ones petioled, smooth, lanceolate, entire, and spreading or hanging downwards. The flowers are pale yellow, and smaller than the preceding. The calyx is yellowish and spreading; petals obovate; filaments simple, erect, supporting oblong anthers; germen cylindrical, tapering into a short style, which is crowned with a knobbed stigma. The pods are small, smooth, obtusely quadrangular, pressed close to the stem, and terminated by the permanent style and capitate stigma. The seeds are numerous, round, shining, and of a dark brown colour. The French call the plant "*sénévé*," and confine the term "*moutarde*" to prepared table mustard.

The generic name *Sinapis*, which occurs, with slight variations in the orthography, in the works of Plautus, Pliny, and Columella, is retained in our modern nomenclature from these celebrated authors. Theophrastus and Dioscorides call it *Σινάπις*. De Théis conjectures that this word comes from *Nap*, a Celtic name for all plants allied to the radish. The colour of the respective seeds suggested the trivial appellations, *alba* and *nigra*. Mustard, moutarde, mosterd, &c., are said to be all contracted corruptions of *mustum ardens*, *hot must*: the sweet *must* of new wine being one of the old ingredients in mustard prepared for dietetic uses; a practice which is still adhered to by the French. In moistening mustard powder for the table both the flavour and appearance are improved by mixing it with rich milk; but this mixture has the disadvantage of not keeping good for more than a couple of days.

DISTINCTIVE CHARACTERS.—The difference in point of form betwixt the leaves and pods of the present species, and those of the preceding sort, distinguish the two plants at once. The Black Mustard is a taller plant than the white; the upper leaves of the black are narrow and pendant, the flowers small, the pods quite smooth, and lying close to the stem; while in the white, the flowers are large, the pods rough or hairy, and standing out from the stalk.

As substitutes for either the black or common Mustard, most of the Cruciferæ may be used, especially the *Sinapis arvensis*, *Myagrum sativum*, *Sisymbrium officinale*, the *Erysimum*, *Lepidium*, *Turritis*, *Brassica*, *Sinapis orientalis*, *Chinensis*, and *brassicata*; the latter is commonly cultivated in China. The *Raphanus Raphanistrum*, or wild radish, is said to be so complete a substitute, that the seeds are often separated in the process of cleaning grain by farmers, and sold to the mustard or oil millers, who dispose of it as Durham Mustard.

Professor Brande states that the bright yellow powder sold under the name of *flour of mustard*, and used at the table, is a compound of black and pale mustard-seed, Cayenne pepper, wheat flower and

turmeric ; a portion of sulphur may be detected in the different kinds of mustard seeds, and when mustard as prepared for a condiment, putrifies, it exhales the odour of sulphuretted hydrogen.

QUALITIES AND CHEMICAL PROPERTIES.—The seeds of both the black and white mustard agree in their sensible qualities, and are used indiscriminately at our tables. They are pungent and acrimonious when bruised, and by the addition of vinegar become much more so. A mild oil, having a sweetish taste and a slight nauseous odour, and which soon turns rancid, is yielded by expression, the acrid matter being chiefly retained by the fecula. The seeds afford one-fifth of their weight of this oil, which in large doses operate as a purgative. The mark which remains after expressing is more pungent than the seeds previously were, and on this account they are submitted to pressure previous to being formed into flour of mustard to be used as a condiment. Unbruised, they simply yield mucus to boiling water, which resides in the skin. Water takes up all the active properties of the powder of mustard, and alcohol but little. The seeds give off ammonia by trituration with lime water, which is probably owing to some decomposition taking place, which, yielding hydrogen, it combines with the nitrogen present in the seeds, and the volatile alkali is produced.

Dr. Cullen long ago observed, that if mustard-seeds be taken fresh from the plants, and ground, the powder has little pungency, but is very bitter ; by steeping in vinegar, however, the essential oil is cooled, and the powder becomes extremely pungent. M. Thibierge has since analyzed mustard, and obtained from it the following products:—1. A soft, fixed oil, of a dark greenish colour, soluble in alcohol and ether, which is procured by pressure. 2. Another oil, obtained by distillation, of a golden yellow colour, volatile, heavier than water, having a hot acrid taste, soluble in alcohol and depositing sulphur. It is this oil which irritates the eyes and excites tears, in mustard prepared for the table, and which vesicates when mustard is applied to the skin. 3. An albuminous vegetable principle ; 4. a large quantity of mucilage ; 5. sulphur ; 6. nitrogen ; 7. the seeds incinerated appear to contain phosphate and sulphate of lime, and a little silex. [*Journ. de Pharm.* v, 439.] Henry and Garot have ascertained that mustard contains a peculiar acid, which they have named the sulpho-sinapic, in which sulphur is supposed to exist in a peculiar state of combination. (*Journ. de Chirur. Med.*)

MEDICAL PROPERTIES AND USES.—A large tea-spoonful of the powder of mustard-seed mixed in water, produces vomiting, and on account of its stimulating properties, is perhaps preferable to other emetics, when the stomach has been rendered torpid, by apoplectic, or paralytic affections. It is even asserted that it has acted in such cases, when other emetics have failed : and diffused in a large quantity of warm water, it is always a useful auxiliary to them. The unbruised seeds, swallowed in doses of half an ounce to an ounce, have relieved chronic rheumatism. Bergius, who is extremely fond of combining other agents with cinchona bark, says that its activity is much increased, by being mixed with flour of mustard, and he even asserts that he has cured intermittants solely by its use. The great Boerhaave, also, gives the case of a girl at Amsterdam, who after taking a variety of medicines for chorea, was at last restored to perfect health by white mustard seeds. They are proper, he observes, in hypochondriac affections, obstructions of the liver, and spleen, in dropsy, scurvy, cachexy, and chlorosis. Combined with horse-radish, they are stimulant and diuretic, and as such are useful in broken down constitutions. In cases of dyspepsia, attended by habitual costiveness in leucophlegmatic constitutions, two or three tea-spoonfuls of the whole seed, repeated two or three times a day, will frequently prove beneficial, but the injudicious manner in which their virtues have been lauded, has led to the abuse of a useful remedy, which in improper hands has produced ulceration of the mucous membrane of the stomach and intestines, and other serious consequences. Instances of this kind are mentioned in Wheeler's Catalogue of the Official Plants growing in Chelsea Gardens. He says, he has known the seeds retained for more than a week in the *primæ viæ*, and enteritis, and even death to ensue from these irritating seeds entering the appendix cæci vermiformis. Van Swieten also relates the case of a strong healthy man, attacked with a quartan ague, who swallowed a large quantity of bruised mustard seeds steeped in Hollands. Inflammatory fever followed, and carried him off in three days. In typhus fever, when there is extreme depression of the vital powers, or determination of blood to the head ; and in comatose affections, cataplasms, or sinapisms, as they are more frequently termed, composed of equal parts of flour of mustard and of crumbs of bread, made into a paste with hot vinegar, are applied to the feet, and act as powerful rubefacients. If continued too long, very intense pain is produced by them, and inflammation which it is difficult to subdue.

OFF. PREP.—Cataplasma Sinapis. *L. D.**

The seeds of mustard are not only remarkable for the rapidity of their development so that it has been said a salad might be grown while a joint of meat was being roasted, but also for their tenacity of life, for where a crop of mustard has been once seeded, self-sown stragglers will come up for a century afterwards.

* WHITHEAD'S "Essence of Mustard" consists of oil of turpentine, camphor, and spirits of rosemary ; to which is added a little flour of mustard. His "Essence of Mustard Pills" are Balsam of Tolu, with resin!



Gonolobus hispidus.

GONOLOBUS HISPIDUS.—HISPID GONOLOBUS.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, ASCLEPIDACEÆ.

CHARACTER OF THE GENUS GONOLOBUS. Calyx five-parted. Corolla somewhat wheel-shaped, five-parted. Corona stamineous, scutelliform-lobed. Anthers terminating with a membranaceous appendage, dehiscing transversely. Pollinia transverse, fixed to the exterior extremity. Stigma flattish. Follicles patent, ventricose, somewhat ribbed. Seeds many, comose to the umbilicus.

DESCRIPTION OF THE SPECIES, GONOLOBUS HISPIDUS. Stem suffruticose, round, somewhat twining, clothed with long, soft, yellowish hispid hairs. Leaves opposite, petiolate, membranaceous, of a pale green colour, ovate, cordate, or orbicular, the upper ones acute, undulate, and ciliate, each side smooth, with the exception of the veins on the under side, which are prominent. Petioles from a quarter to half an inch long, covered with hairs, similar to those on the stem. Peduncles axillary, hairy, scarcely as long as the petioles. Flowers from four to ten, umbellate. Pedicels hairy, about half as long as the peduncles. Bracts subulate, about the length of the pedicels. Calyx smooth, about one third the length of the corolla. Corolla from half to three quarters of an inch in diameter, rotate, concave, of a thick coriaceous leathery texture, and of a dark shining brownish purple colour, divided into five equal ovate acute parts, in the exterior of which, at the base, are small raised points. Nectaries of five erect dark, purple, fleshy, bifid scales from the base of the corolla; within these appendages are arranged the five stamens, which are united into a very thick stipes. Anthers five, extrose, two celled, between which are found two small diverging lobes. Pollen masses two, compact, waxy, yellow. Ovarium inferior, ovules numerous.

The species which compose this genus are not of a showy character, indeed many of them are no better than rambling weeds, and not worth cultivating; such are for example, *Gonolobus maritimus*, and *Gonolobus diadematus*. Perhaps for beauty there has not been introduced a more attractive species than the one now figured, as each umbel contains from eight to ten blossoms, having a diameter of from two to three inches, which are arranged in the axils of the leaves, alternate on each side of the stem, at a distance of about three inches; and so freely are its flowers produced that they commence at about eighteen inches from the ground, and continue to the height of several feet. The flowers, however, are not of an attractive brilliance, being of a dark brown purple colour; but it has a powerful and concentrated fragrance, of so singular a description that it has been compared, by Sir W. J. Hooker, to the flavour of roasted peas. The number of described species at present introduced amounts to about thirty, all natives of South, and the warmer parts of North, America: the locality of our present species is Entre Rios, South Brazil.

If, however, the species of this genus are not showy, they are, together with the whole of the natural order Asclepiadaceæ, very singular in structure, so much so that they differ from all other dicotyledones or exogens, and are more related in their sexual structure to the Orchidaceæ, as may be witnessed in the compact waxy texture of the pollen masses, and which are found so uniformly in the Asclepiadaceæ proper. On the relation of Asclepiadaceæ to Orchidaceæ some interesting observations have been published, by Dr. then Mr. Brown, to which the reader is referred.

INTRODUCTION; WHERE GROWN; CULTURE. Our plant was introduced into this country in the year 1837. It was sent, in that year, by Mr. Tweedie, to the Glasnevin Garden, in which establishment it flowered in 1839.

It is treated as a stove plant, but, probably, it will stand our winters in a sheltered situation, against a warm wall, on the southern coast; where, if trained, it will flower in much greater perfection than remaining in a pot; and its lurid flowers will form a striking contrast to many other climbers. It may be propagated by cuttings, placed under a hand-glass in a stove; and when potted out should be planted in loam, sand, and peat.*

A writer under the signature Crito in the "Truth Teller" dilates most pleasantly in his fourth letter concerning flowers and their names. He says "the pilgrimages and the travelling of the mendicant friars, which began to be common towards the close of the twelfth century, spread this knowledge of plants and of medical nostrums far and wide. Though many of these vegetable specifics have been of late years erased from our Pharmacopœias, yet their utility has been asserted by some very able writers on physic, and the author of these observations has himself often witnessed their efficacy in cases where regular practice had been unavailing. Mr. Abernethy has alluded to the surprising efficacy of these popular vegetable diet drinks, in his book on the 'Digestive Organs.' And it is a fact, curiously corroborating their utility, that similar medicines are used by the North American Indians, whose sagacity has found out, and known from time immemorial, the use of such various herbs as medicines, which the kind, hospitable woods provide, and by

* We are indebted to that charming work, the "Botanist," for the figure and description.

means of which Mr. Whitlaw is now making many excellent cures of diseases." He then proceeds to mention certain plants noted by the monks, as flowering about the time of certain religious festivals: "The Snowdrop, *Galanthus nivalis*, whose pure white and pendant flowers are the first harbingers of spring, is noted down in some calendars as being an emblem of the purification of the spotless virgin, as it blows about Candlemas, and was not known by the name of Snowdrop till lately, being formerly called Fair Maid of February, in honour of our lady. Sir James Edward Smith, and other modern botanists, make this plant a native of England, but I can trace most of the wild specimens to some neighbouring garden, or old dilapidated monastery; and I am persuaded it was introduced into England by the monks subsequent to the conquest, and probably since the time of Chaucer, who does not notice it, though he mentions the daisy, and various less striking flowers. The Ladysmock, *Cardamine pratensis*, is a word corrupted of 'our lady's smock,' a name by which this plant (as well as that of *Chemise de notre Dame*) is still known in parts of Europe: it first flowers about Lady Tide, or the festival of the Annunciation, and hence its name. Cross Flower, *Polygala Vulgaris*, which begins to flower about the invention of the Cross, May 3, was also called *Rogation flower*, and was carried by maidens in the processions in Rogation week, in earlier times. The monks discovered its quality of producing milk in nursing women, and hence it was called *milkwort*. Indeed so extensive was the knowledge of botany, and of the medical power of herbs among the monks of old, that a few examples only can be adduced in a general essay, and indeed it appears that many rare species of exotics were known by them, and were inhabitants of their monastery gardens, which Beckmann, in his '*Geshichte der Erfindungen*,' and Dryander in the '*Hortus Kewensis*,' have ascribed to more modern introducers. What is very remarkable is, that above three hundred species of medical plants were known to the monks and friars, and used by the religious orders in general for medicines, which are now to be found in some of our numerous books of pharmacy and medical botany, by new and less appropriate names; just as if the Protestants of subsequent times had changed the old names with a view to obliterate any traces of catholic science. Linnæus, however, occasionally restored the ancient names. The following are some familiar examples which occur to me, of all medicinal plants, whose names have been changed in latter times. The *virgin's bower*, of the monastic physicians, was changed into *flammula Jovis*, by the new pharmacians; the *hedge hyssop*, into *gratiola*; the *St. John's wort* (so called from blowing about St. John the Baptist's day) was changed into *hypericum*; *fleur de St. Louis*, into *iris*; *palma Christi*, into *ricinus*; *our master wort*, into *imperatoria*; *sweet bay*, into *laurus*; *our lady's smock*, into *cardamine*; *Solomon's seal*, into *convallaria*; *our lady's hair*, into *trichomanes*; *balm*, into *melissa*; *marjorum*, into *origanum*; *crowfoot*, into *ranunculus*; *herb Trinity*, into *viola tricolor*; *avens* into *caryophyllata*; *coltsfoot*, into *tussilago*; *knee holy*, into *rascus*; *wormwood*, into *absinthium*; *rosemary*, into *rosmarinus*; *marygold*, into *calendula*, and so on. Thus the ancient names were not only changed, but in this change all the references to religious subjects, which would have led people to a knowledge of their culture among the monastic orders, were carefully left out. The Thorn Apple, *datura stramonium*, is not a native of England; it was introduced by the friars in early times of pilgrimage; and hence we see it on old waste lands near abbeys, and on dunghills, &c. Modern botanists, however, have ascribed its introduction to gipsies, although it has never been seen among that wandering people, nor used by them as a drug. I could adduce many other instances of the same sort. But vain indeed would be the endeavour to over-shadow the fame of the religious orders in medical botany and the knowledge of plants; go into any garden and the common name of *marygold*, *our lady's seal*, *our lady's bedstraw*, *holy oak*, (corrupted into *holyhock*), the *virgin's thistle*, *St. Barnaby's thistle*, *herb Trinity*, *herb St. Christopher*, *herb St. Robert*, *herb St. Timothy*, *Jacob's ladder*, *star of Bethlehem*, *star of Jerusalem*, now made *goatsbeard*: *passion flower*, now *passiflora*; *Lent lily*, now *daffodil*; *Canterbury bells*, (so called in honour of St. Augustine,) is now made into *Campanula*; *cursed thistle*, now *carduus*; besides *archangel apple of Jerusalem*, *St. Paul's betony*, *Basil*, *St. Berbe*, *herb St. Barbara*, *bishopsweed*, *herba Christi*, *herba Benedict*, *herb St. Margaret*, (erroneously converted into *la belle Marguerite*), *god's flower* flos Jovis, *Job's tears*, *our lady's laces*, *our lady's mantle*, *our lady's slipper*, *monk's hood*, *friar's cowl*, *St. Peter's herb*, and a hundred more such.—Go into any garden, I say, and these names will remind every one at once of the knowledge of plants possessed by the monks. Most of them have been named after the festivals and saints' days on which their natural time of blowing happened to occur; and others were so called, from the tendency of the minds of the religious orders on those days to convert every thing into a memento of sacred history, and the holy religion which they embraced."

It will be perceived that Crito is a Catholic. His floral enumeration is amusing and instructive; but deceptive views, false reasonings, and perverted facts, cannot be used, by either Protestant or Catholic, with impunity to himself, or avail to the cause he espouses.



Aquilegia glandulosa.

AQUILEGIA GLANDULOSA.—GLANDULAR COLUMBINE.

CLASS XIII. POLYANDRIA.—ORDER II. PENTAGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

CHARACTER OF THE GENUS, AQUILEGIA. Calyx of five deciduous coloured petaloid sepals. Petals five, two-lipped and gaping at top, the outer lip large and flat, the inner very small, produced downwards into as many spurs projecting between the sepals. Stamens many, arranged in five or ten bundles, the inner ones without anthers and with broad membranous filaments. Ovaries five. Capsules as many, erect, many-seeded, pointed by the styles.

DESCRIPTION OF THE SPECIES, AQUILEGIA GLANDULOSA. Stem usually about a foot to eighteen inches high, not much branched, nearly smooth in the lower part, more or less pubescent and glandular in the upper part. Leaves chiefly radical, or proceeding from near the base of the stem, with long slender footstalks divided above the middle into three, each bearing three nearly sessile segments, which are rounded somewhat cuneate, and divided to about the middle into three lobes, which are themselves crenated or obtusely lobed; these leaves are smooth and somewhat glaucous underneath; the few upper leaves much smaller, and often consist of a few linear segments only. Flowers solitary on the peduncles, large, nodding. Sepals oval, oblong, rather pointed, of a deep blue, smooth. Petals not half so long as the sepals, the lamina obovate, blunt, of a pale yellowish colour, spurs blueish, much shorter than the lamina, the extremity blunt, and more or less curved, but usually much less hooked than in *Aquilegia vulgaris*. Stamens shorter than the petals. Capsules pubescent, six to ten in number, very seldom reduced to five.

POPULAR AND GEOGRAPHICAL NOTICE. The Columbines are all inhabitants of the temperate or even the cold regions of the Northern hemisphere in the new world as well as in the old. The greater number of species are found in central Asia. They usually prefer light woods in mountainous countries, although some of the more alpine species are also found in the crevices of elevated rocks. The present species, very common in the alpine and subalpine regions of the Altai Chain, there replaces our European *Aquilegia Alpina*, which it closely resembles, and of which it may possibly be a mere variety. It has, however, been distinguished by the shortness of the spurs of the petals, and by the number of ovaries, which are seldom if ever more than five, in the European species, and very rarely so few as five in the Siberian one. It is also a taller growing and handsomer plant, with larger flowers, and the petals are more frequently, though not constantly, white. None of these characters appear indeed to be absolute in all cases, but are nearly as good as those which serve to distinguish many other species of this most natural genus.*

COLUMBINE, COCK'S-FOOT, OR CULVERWORT.—The botanical name for this plant, *Aquilegia* or *Aquilina*, is derived from *aquila*, an eagle, from a notion that the nectaries resemble an eagle's claws. Our English name, columbine, is derived from the resemblance which, in a wild state, these parts bear, both in form and colour, to the head and neck of a dove, for which the Latin name is *Columba*.—*French*, *aglantine*, *ancolie*, *la columbine*, *la galantine*; *gands de notre dame* [our lady's gloves].—*Italian*, *achellea*, *colombina*, *perpetto amore* [true love], *celidona maggiore* [great celandine]; at Venice, *galeti*.

The Common Columbine is generally, in its wild state, of a blue colour, whence it is named the Blue Starry, but in the neighbourhood of Berne, and in Norfolk, it has been found both with red and white flowers. It is common in woods, hedges, and bushes, in most parts of Europe. They are greatly changed by culture: become double in various ways; and are of almost all colours; blue, white, red, purple; flesh, ash, and chestnut coloured blue and white, and red and white. It is a perennial plant, and, with us, flowers in June.

Every part of this plant has been considered as a useful medicine, but Linnæus affirms that, from his own knowledge, children have lost their lives by an over dose of it. That might, however, be the case with some of our best medicines.

The Alpine Columbine has blue flowers tipped with a yellowish green, blowing in May and June. (Biennial.)

The Canadian Columbine flowers in April: the flowers are yellow on the in, red on the outside. (Perennial.)

The Columbines may be increased by parting the roots; but, as they are apt to degenerate, are most commonly raised from seed: these will not grow to flower till the second year; and, as you cannot be sure

* The Botanist.

of the kinds they will produce, it is better to procure the plants from a nursery. They should have a little water, two or three times a week, in dry weather; and may remain in the open air.

Gawin Douglas speaks of the Columbine as black, from the deep purple which some of them take:—

“Floure-damas, and columbe blak and blew.”

This has been differently expressed in Mr. Fawkes’s modernized version; and not happily, for the Columbine drops its head:—

“And columbine advanced his purple head.”

W. Browne speaks of it in all its colours:

“So did the maidens with their various flowers
Decke up their windowes, and make neat their bowers;
Using such cunning, as they did dispose
The ruddy piny with the lighter rose,

The monk’s-hood with the bugloss, and intwine
The white, the blew, the flesh-like columbine
With pinks, sweet-williams; that, far off, the eye
Could not the manner of their mixture spye.”

He tells us that the King-cup is an emblem of jealousy; that—

“The columbine in tawny often taken,
Is then ascribed to such as are forsaken;
Flora’s choice buttons, of a russet dye,
Is hope even in the depth of misery:

The pansie, thistle all with prickles set,
The cowslip, honeysuckle, violet,
And many hundreds more that grace the meades.

Spring commences on the 6th of March, and lasts ninety-three days.

According to Mr. Howard, whose practical information concerning the seasons is highly valuable, the medium temperature during spring is elevated, in round numbers, from 40 to 58 degrees. “The mean of the season is 48.94°—the sun effecting by his approach an advance of 11.18° upon the mean temperature of the winter. This increase is retarded in the forepart of the spring by the winds from north to east, then prevalent; and which form two-thirds of the complement of the season; but proportionately accelerated afterwards by the southerly winds, with which it terminates. A strong evaporation, in the first instance followed by showers, often with thunder and hail in the latter, characterises this period. The temperature commonly rises, not by a steady increase from day to day, but by sudden starts, from the breaking in of sunshine upon previous cold, cloudy weather. At such times, the vapour appears to be now and then thrown up, in too great plenty, into the cold region above: where being suddenly decomposed, the temperature falls back for awhile, amidst wind, showers, and hail, attended, in some instances, with frost at night.”

In “*Sylvan Sketches*,” a charming volume by the lady who wrote the “*Flora Domestica*,” it is delightfully observed, that, “the young and joyous spirit of spring sheds its sweet influence upon every thing: the streams sparkle and ripple in the noon-day sun, and the birds carol tipseyly their merriest ditties. It is surely the loveliest season of the year.” One of our living minstrels sings of a spring day, that it

Looks beautiful, as when an infant wakes
From its soft slumbers;

and the same bard poetically reminds us with more than poetical truth, that at this season, when we

See life and bliss around us flowing,
Wherever space or being is,
The cup of joy is full and flowing.—*Bourving*.

Another, whose numbers are choralled by worshipping crowds, observes with equal truth, and under the influence of high feelings, for seasonable abundance, that

To enjoy is to obey.—

In spring the ancient Romans celebrated the *Ludi Florales*. These were annual games in honour to Flora, accompanied by supplications for beneficent influences on the grass, trees, flowers, and other products of the earth, during the year. The Greeks likewise invoked fertility on the coming of spring with many ceremonies. The remains of the Roman festivals, in countries which the Roman arms subdued, have been frequently noticed already; and it is not purposed to advert to them further, than by observing that there is considerable difficulty in so apportioning every usage in a modern ceremony, as to assign each to its proper origin. Some may have been common to a people before they were conquered; others may have been the growth of latter times. Spring, as the commencement of the natural year, must have been hailed by all nations with satisfaction; and was, undoubtedly, commemorated, in most, by public rejoicing and popular sports.

Columbine is the emblem of *Folly*.



Aloe Socotrina.

ALOE SOCOTRINA.—SOCOTRINE ALOE.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ASPHODELEÆ.—THE ASPHODEL TRIBE.

FIG. (a) represents a flower cut open; (b) the germen and style.

THE Socotrine Aloe is a perennial plant, with a strong fibrous root; flowering in winter and spring. The stem is rounded, smooth, erect, of a glaucous green colour towards the top beset with ovate bracteal scales, and rises to the height of three or four feet. The leaves are numerous, spreading, and proceed from the upper part of the root; they are about two feet long, broad at the base, tapering gradually to a point, thick, fleshy, succulent, channelled, glaucous, smooth, and armed at the edges with remote, whitish, horny teeth. The flowers are produced in terminal spikes, of a purple or reddish colour; each flower being accompanied with a single ovate, acute, broad, membranous bracte, white, with three green streaks, and shorter than the corolla. The perianth is petaloid, bell-shaped, and divided into six narrow segments; the three inner lobes are white with three green lines; the outer ones narrower and less concave. The filaments are six, tapering yellowish, exserted from the receptacle, and furnished with oblong, orange-coloured anthers; the germen is oblong, with a simple slender style, and an obtuse stigma. The capsule is oblong, 3-celled, containing many angular seeds.

All the species of this extensive genus are natives of hot climates, and most of them grow at the Cape of Good Hope.

It is now well known that numerous individuals of the Aloe family furnish the concrete juice, met with in commerce under the name of *aloes*; but the subject is still surrounded with so many difficulties, that we must crave the indulgence of our readers, should we be so unfortunate as to perpetuate errors, or fail to increase their present stock of knowledge. Six different kinds of aloes are met with in commerce:—

1st. *Barbadoes aloes*, also called *Hepatic aloes*, and *extract of the common aloes*, is, as stated before, the produce of the *A. vulgaris*. The following account of the culture pursued at Barbadoes, and of the method by which the juice is collected, was communicated by Mr. Millington to the Medical Journal, vol. viii.

"The lands in the vicinity of the sea, that is, from two to three miles, which are rather subject to draught than otherwise, and are so stony and shallow, as not to admit of planting sugar-canes with any prospect of success, are generally found to answer best for the aloe-plant. The stones, at least the largest ones, are first picked up, and either packed in heaps upon the most shallow, barren spots, or laid round the field as a dry wall. The land is then ploughed lightly, and very carefully cleaned of noxious weeds, lined at one foot distance from row to row, and the young plants set, like cabbages, at about five or six inches from each other. This regular mode of lining, and setting the plants, is practised by the most exact planters, in order to facilitate the weeding of them by hand very frequently, because, if they are not kept perfectly clean and free from weeds, the produce will be but very small.

"They will bear being planted in any season of the year, even in the driest, as they will live on the surface of the earth for many weeks, without a drop of rain. The most general time, however, of planting them is from April to June. In the March following, the labourers carry a parcel of tubs and jars into the field, and each takes a slip or breadth of it, and begins by laying hold of a bunch of the blades, as much as he can conveniently grasp with one hand, while with the other he cuts it just above the surface of the earth, as quickly as possible, that the juice may not be wasted, and then places the blades in the tub, bunch by bunch, or handful by handful. When the first tub is thus packed quite full, a second is begun, each labourer having two; and by the time the second is full, all the juice is generally drained out of the blades in the first tub. The blades are then lightly taken out, and thrown over the land by way of manure, and the juice is poured out into a jar. The tub is then filled with blades, and so alternately till the labourer has produced his jar full, or about four gallons and a half, which is often done in six or seven hours, and he has then the remainder of the day to himself, it being his employer's interest to get each day's operation as quickly done as possible.

"I should observe, that although aloes are often cut in nine, ten, or twelve months after being planted, they are not in perfection till the second and third year; and that they will be productive for ten or twelve years, or even longer, if good dung, or manure of any kind, be strewed over the field once in three or four years.

"The aloe juice will keep for several weeks without injury. It is, therefore, not boiled till a sufficient quantity is procured to make it an object for the boiling house. In the large way, three boilers, either of iron or of copper, are placed to one fire, though some have but two, and the small planters only one. The boilers are filled with the juice, and as it ripens, or becomes more inspissated, by a constant but regular fire, it is ladled forward from boiler to boiler, and fresh juice is added to that farthest from the fire, till the

juice in that nearest the fire (by much the smallest of the three, and commonly called by the name of *tatch* as in the manufactory of sugar) becomes of a proper consistency to be skipped or ladled out into *gourds*, or other small vessels used for its final reception. The proper time to ladle it out is when it has arrived at what is termed a resin height, or when it cuts freely, or drops in thin flakes. A little lime water is used by some aloo boilers, during the process, when the ebullition is too great. As to the sun-dried aloes, which are more approved for medicinal purposes, very little is made in Barbadoes. The process is very simple. The raw juice is either put into bladders, left quite open at the top, and suspended in the sun, or in broad shallow trays of wood, pewter, or tin, exposed also to the sun, every dry day, until all the fluid parts are exhaled, and a perfect resin formed, which is then packed up for use or for exportation."

2nd Socotrine aloes.—The real Socotrine aloes, which is rarely met with in commerce, is produced by the *A. Socotrina*. It grows in abundance on the island of Zocotora, which was first discovered by the Portuguese in 1503. The plant is also found in many parts of the South of Africa, particularly in the kingdom of Melinda, where the greater part of the extract is prepared that is now sold under the name of Socotrine, and Cape aloes. India, Borneo, and Sumatra, also furnish us with this kind of aloes, which are sometimes packed in casks, and at others in skins.

In the island of Zocotora, the inhabitants cut or chop the leaves, and make a slight pressure to obtain the juice, which is left to settle. It deposits a feculent matter, which is thrown away. The supernatant liquor thus freed from its grosser parts, is left to spontaneous evaporation; and it is this difference in the two processes that accounts for the superiority of the real Socotrine aloes over that of the Cape: for there, the Hottentots cut the end of the leaves and catch the liquor which flows from them in proper vessels, the lower leaves of the plant generally serving for canals to conduct it into them. The juice thus obtained, is at once reduced to a suitable consistence over the fire, and afterwards packed in boxes containing from one to three hundred pounds.

Socotrine aloes is in solid fragments, compact, heavy, and brittle. It is of a yellowish red or brown colour, in proportion to its purity; is glossy, and breaks with a smooth conchoidal fracture. The thin edges are reddish, and semi-transparent. It is rendered friable by cold, softens by heat, and is adhesive to the touch: it is easily reduced to a powder, which is of a golden yellow colour: but it soon condenses again into a mass, the particles of which adhere strongly. The odour is strong, *sui generis*: the inferior sorts fetid and nauseous. The taste is bitter, resembling bile. According to Bouillon La Grange, and Vogel, it is composed of 22 parts of resin, and 68 of extractive matter. It dissolves almost entirely in spirits of wine, and yields a volatile oil by distillation. It is considered to be more mild in its operation than the other kinds of aloes. The *Cape aloes* differ from the Socotrine in possessing a stronger and less agreeable odour. They are also of a less yellow colour, and less vitreous in appearance. The powder is of a greenish yellow, resembling gamboge, but less bright.

MEDICAL PROPERTIES AND USES.—It is the *A. vulgaris* and *A. Socotrina*, that produce the gum-resins used for pharmaceutical purposes; and they differ little in their medicinal effects. They are warm stimulating purgatives, particularly adapted for what is termed the melancholic temperament; and exercise a tonic power, proved by their extreme bitterness, and the beneficial influence in chronic affections of the stomach and bowels, as vomiting, flatulence, loss of appetite, and other symptoms usually denominated dyspeptic. Their operation is slow, but generally effective, nor do large doses appear to exert much more power than smaller ones. The medium dose of aloes is from five to ten grains, but they are generally combined with other purgatives to obviate habitual costiveness; to remove viscosity of the intestines; and from their stimulating and tonic powers are well adapted for jaundice, chlorosis, hypochondriasis, and scrofula.

In doses of two drachms, aloes produce nauseating and depressing effects upon the horse, and are therefore much used in the active diseases of this noble animal, when it is necessary to diminish the force of the circulation. From six to eight drachms of aloes, combined with soap and other ingredients, also constitute the purgative-ball usually administered.

The following are some of the principal Quack or Patent Medicines that owe their activity chiefly to the aloes they contain:—

Anderson's Pills consist of Barbadoes aloes, with a proportion of jalap and oil of aniseed.

Hooper's Pills.—Pil. aloes with myrrh, or Rufus' pill; sulphate of iron; and canella bark, to which is added a portion of ivory black. Dr. Barlow, one of the physicians to the Bath Hospital, relates a case in which these pills were retained in the intestines nearly twelve months. The facts detailed in this case are valuable, from the cautions which they suggest to regular practitioners,—who in administering pills with iron, should be careful to ensure their ready solution by appropriate combination, and also by having them always freshly prepared.—See "Lancet." vol. xi. p. 806.

Dixon's Antibilious Pills.—These are composed of aloes, scammony, rhubarb, and tartar emetic.

Speedimen's Pills.—Myrrh, aloes, rhubarb, of each one ounce, extract of chamomile, half an ounce; beat into a mass with syrup, and divided into four-grain pills.

James' Analeptic Pills.—Gum ammoniacum, pill aloes with myrrh, antimonial powder, of each equal parts, made into a mass with tincture of castor.

The Aloe is the emblem of *Bitterness*.



Epidendrum radicans

EPIDENDRUM RADICANS.—ROOTING EPIDENDRUM.

CLASS XX. GYNANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ORCHIDACEÆ.—THE ORCHIS TRIBE.

GENERIC CHARACTER.—*Calyx* wanting. *Corolla* with five oblong spreading petals. *Labellum* without a horn at the base, tubular, embracing the column, with a broad erect plate. *Column* terete, placed below the germen, gibbous. *Anthers* concave. *Capsule* oblong, three-sided, one celled, three valved. *Seeds* numerous, extremely minute roundish.

SPECIFIC CHARACTER.—*Stem* simple, leafy, throwing out a long whitish-root opposite each leaf. *Leaves* distichous, subcordately ovate, obtuse. *Racemes* lengthening. *Flowers* bright orange-scarlet. *Sepals* and *petals* lanceolate, acute, spreading. *Lip* with two erect compressed calli at the base, from between which an elevated ridge proceeds down the centre, three-lobed; lateral lobes broad, rounded, toothletted at the margin, intermediate lobe cuneate, fimbriated, and deeply emarginate at the apex, entire on both sides.

This elegant species belongs to that section of *Epidendrum* named *Amphiglottium*, distinguished by "the long leafy stem with distichous leaves, the want of every tendency to form pseudo-bulbs, a terminal peduncle covered with close sheaths, and a labellum entirely united to the column." In the recent consideration of this group, by Dr. Lindley, four species besides the present are included in the same division of the subsection with racemose flowers. Two of these approach our subject so narrowly in the general form, jagged edges, and colour of the flowers; in possessing the two tubercular protuberances at the base of the lip, and an elevated plate passing between them down the centre; that the unpractised eye might fail to detect their distinction.

It is only when we descend to the minutia of botanical points, that the dissimilarity of their several parts becomes evident. Dr. Lindley has pointed out the following distinctions:—" *E. radicans* has the lateral lobes of the labellum rounded and toothletted only, not lacerated, and it produces coarse pale green roots from its stems; *E. cinnabarinum* has the lateral lobes of the labellum deeply lacerated, while the central lobe is contracted in the middle, and then suddenly wedge-shaped, with its angles prolonged into one or two fine teeth. *E. Schomburgkii* has the lateral lobes only toothed, with the centre lobe gradually widened to the point, and there toothletted without being at all truncate; the lobes of the lip are confluent in what I take to be a variety of that species." To these we may add, that *E. radicans* produces a root upon the stem opposite each leaf; whilst whatever roots issue from the stem of either of the other species, are confined to the lower portion, and come without any regard to the order of the foliage.

The first plants were received in England from Guatemala, in 1839. In the summer of 1844 we saw a specimen blooming in the superb collection of Mrs. Lawrence, at Ealing Park, which, so far as we can learn, was the first that displayed its flowers in this country. Since then we have been favored with specimens by Mr. Brewster, gardener to Mrs. Wray, at Oakfield, Cheltenham, who has also kindly furnished us with the following remarks:—

"Mr. Skinner sent the plant to Oakfield in 1842. It commenced flowering in the beginning of 1845, and has now covered a wire basket with its long stems, each crowned with a head of flowers. Mr. Skinner says its habit is, terrestrial, growing among long grass and dried leaves. It flowers in October, November, December, and January. It is a lovely plant; and particularly if growing in masses, forms an object of attraction difficult to pass, when seen on mountain sides, and in the deep valleys."

The head of flowers sent us contained twenty-three expanded blossoms, much more rich and brilliant in colour than those of either of its two allies; hence, we may readily imagine what a delightful object it must constitute in its native haunts where it grows in any considerable quantity, peeping with its flaming vernilion flower heads from among the green herbage; and thrusting out its thickened roots from almost every inch of the stem, to suck in sustenance from the humid atmosphere, and drink the dew that settles upon them.*

The beauty and variety of flowers, the fragrance and freshness which we are insensibly led to associate with them, have long been themes for the poet and naturalist; but really not more so than the subject deserves. The endless forms in which plants appear, their adaptations to certain situations, the peculiar properties which many species possess, though all grow on the same soil, the wonderful metamorphoses which they undergo from seed to plant, and from plant and flower to seed again, not to speak of the amenity

* Paston's Magazine of Botany.

and beauty with which they invest the landscape, or of the utility they confer as articles of food, medicine, and clothing, are all subjects of never-failing interest to a reflective mind. But every one has not the opportunity of enjoying this contemplation in the field; and even if he had, the produce of one climate differs so widely from that of another, that his own district would furnish him with a mere fraction of the numerous vegetable families. Knowledge, however, has so far overcome this difficulty; for by the aid of the sheltered garden, the conservatory, and hothouse, the genera of any country can be brought within the compass of a few superficial acres. What can be thus accomplished by the scientific gardener, may be imitated on a small scale by domestic culture, and with comparatively less expense, as our apartments yield that shelter and temperature which it costs the gardener so much to obtain.

The individual, therefore, who can rear in his window-recess, in his lobby, or around his porch, the shrubs and flowers of his own and other lands, has always a subject for contemplation before him; something to engage the attention, and to preserve the mind from the listlessness of ennui, or from positively pernicious pursuits. Any member of a family who has a little stand of plants to water, to clean, and prune, has always a pleasant daily recreation before him; his love and care increase with these objects; the simple duty becomes necessary to his existence; and he has thus, what so many are miserable for the want of, namely, something to occupy hours of listlessness or leisure. Again, plants are objects of beauty and ornament. Why is yonder lowly cottage more lovely and inviting than the large farmhouse on the other side of the river? Simply because its walls are trellised with the rose and honeysuckle, and its porch with the clambering hop, whose dark-green contrasts so finely with the whitewashed front; while the latter is as cold and uninviting as bare stone-walls can make it. So it is with any apartment, however humble. The little stand of flowers in the window recess, with their green leaves and brilliant blossoms, add a charm and freshness to the place; and we will answer for it, that wherever these are, the furniture, though mean, will be clean and neatly arranged.

The in-door culture of plants is also intimately connected with the sanitary condition of our dwellings. The oxygen of the atmosphere is indispensable to the respiration of animals; it purifies their blood, and affords them internal heat; and, united with certain elements, is expired in the form of carbonic acid gas (a compound of oxygen and carbon.) This gas, which is deleterious to animal life, constitutes the main nourishment of plants which absorb it, appropriate its carbon, and restore its oxygen to the atmosphere, again to be breathed in purity by men and animals. It is true that pure air is necessary alike to the life of plants and animals; but the amount of oxygen absorbed by the former is by no means equal to that which they restore, and thus through their agency the atmosphere is kept in healthy equilibrium. It is only during the day, and under the influence of light, however, that carbonic acid is employed for the nutrition of plants; that which they absorb during night is returned into the atmosphere with the water, which is continually evaporating from the surface of the leaves. From this explanation it will be understood how the night air of an apartment containing flowers is said to be less healthy than the atmosphere which pervades it during the day; though under ordinary states of ventilation, no danger need be apprehended from this source.* Besides their directly purifying influence, plants also tend indirectly to the health of dwelling apartments. For their sake the window that contains them will be oftener cleaned, the sash will be more frequently thrown open, and the air and sunshine intended for them will also lighten and purify the interior of the apartment.

It may perhaps be objected that such a recreation requires more time than you can bestow; that it is too expensive for you; and that it requires a greater knowledge of horticulture than you possess. To all these objections we answer—No. If your little conservatory is once in a healthy condition, a very small amount of care will be sufficient to preserve it so. A few minutes before or after breakfast will keep a large array of plants in excellent order; and the duty may be intrusted to any grown-up member of a family. We know a surgeon in an extensive provincial practice—one of the most laborious of callings—and yet this gentleman has managed, during the last ten or twelve years, to conduct the most extensive conservatory of cactaceæ and epiphytes in Scotland, besides constructing most of the shelving and erection with his own hands. As to the expense, it is a mere trifle, unless the individual indulges in the purchase of new and pet varieties, as advertised by the nurseryman. Common flower-pots can be had from any pottery from one penny to sixpence each, and ornamental ones for about a third more. The soil costs nothing; and a very respectable show of geraniums, hydrangeas, monthly roses, verbenas, scented myrtles, fuchsias, cactuses, aloes, and the like, may be had by exchanging slips with neighbouring cultivators, or originally from some gardener for a trifle.

* From recent experiments on the respiration of plants, Mr. Heseldine Pepys has arrived at the following general conclusions:—
1. That vegetation is *always* operating to restore the surrounding atmospheric air to its natural condition, by the absorption of carbonic acid, and the disengagement of oxygenous gas; that this action is promoted by the influence of light, but that it continues to be exerted, although more slowly, even in the dark. 2. That carbonic acid is never disengaged, during the healthy condition of the leaf. 3. That the fluid so abundantly exhaled by plants in their vegetation, is *pure water, and contains no trace of carbonic acid*. Should this be the case, growing plants cannot, under any condition, impair the purity of the atmosphere, but rather the reverse; unless to be sure the odours which they emit be too powerful to be agreeable.



Marrubium vulgare.

MARRUBIUM VULGARE.—THE WHITE HOREHOUND.

CLASS XIV. DIDYNAMIA.—ORDER I. GYMNOSPERMIA.

NATURAL ORDER, LABIATÆ.—THE MINT TRIBE.

FIG. (a) is a magnified flower cut open to show the position of the anthers; (b) the germen and style; (c) a nut; (d) the calyx; (e) the same, cut open; (f) a bractea.

WHITE HOREHOUND is common in most parts of Europe as well as in Britain, on waste grounds and among rubbish particularly in warm, dry situations, flowering copiously during the latter part of the summer. Willdenow enumerates fourteen species of *Marrubium*, and Mr. Don, in the "*Hortus Cantabrigiensis*," notices thirteen that are cultivated in this country, most of which are European plants. Dr. Sibthorp has also added a beautiful new species, in the "*Flora Græca*," called *velutimum*.

The root is perennial, woody, and fibrous, sending up several stems, branching from the bottom, about eighteen inches high, quadrangular, leafy, and clothed with fine down. The leaves are roundish or oblong, pointed, crenate, wrinkled, veined, hoary, and stand in opposite pairs, on thick broad footstalks. The flowers are white, and produced in dense convex whorls, at the axillæ of the leaves; they are sessile, and furnished with setaceous, awned bracteas. The calyx is tubular, funnel shaped, furrowed, and divided at the margin into ten narrow teeth, recurved at the point, the five alternate ones being smallest. The corolla is monopetalous, and consists of a cylindrical tube opening at the mouth into two lips, the upper of which is erect, linear, and cloven, the under broader, reflexed, and divided into three deep lobes, with the lateral segments acute, and the middle one broad and slightly scalloped at the end. The filaments are, two long and two short, concealed within the tube of the corolla, and furnished with small oblong anthers. The germen is 4-lobed, surmounted by a thread-shaped style, with a cloven stigma. The nuts are four, at the bottom of the calyx.

QUALITIES.—the leaves have a strong peculiar smell of an aromatic kind, which is completely lost by keeping. To the taste they are bitter, penetrating, diffusive, and their flavour is durable in the mouth. "The infusion reddens tincture of litmus, gives a deep olive-green precipitate with sulphate of iron, a brown with nitrate of silver, and a pale yellow with corrosive sublimate; acetate and superacetate of lead do not affect it. The active principles of horehound therefore appear to be a bitter extractive, volatile oil, and gallic acid."

MEDICAL PROPERTIES AND USES.—This plant, which is still a very popular remedy with the poor, is tonic, and when taken in considerable doses is gently aperient. It was formerly much commended for asthma, jaundice, cachexy, and other obstructions. It has however given way to more active remedies, but although seldom employed by medical men, is said by Dr. Thompson to have been of decided use in cases of phthisis. A drachm of the leaves in powder, or an ounce of the expressed juice, are commonly ordered for a dose. The infusion is made with one ounce of the dried leaves, and a pint of boiling water, and given in the quantity of a wine-glassful twice or thrice a day.*

DECOCTUM MARRUBII COMPOSITUM.

Rj. Marrubii fol. exsicc. ʒj.

Glycyrrhizæ rad. concisæ.

Lini usitatiss. sem. contus. sing. ʒ ss.

Aquæ ferventis Ojss. Macera per horas

quatuor, et cola.—Dosis ʒj. ad ʒij.

* The nostrum sold as *Balsam of Horehound* consists, according to Paris, of infusion of horehound and liquorice root, with double the portion of proof spirit or brandy; to which is added opium, camphor, benzoin, squills, oil of aniseed and honey.

The name of this month is derived from the verb *aperire*, which signifies to open, because seeds germinate, and at this season flowers begin to blow; yet Macrobius affirms that it is derived from a Greek word signifying *aphrilis*, or descended from Venus, or born of the scum of the sea, because Romulus dedicated the month to Venus. This may be the real derivation; the former is the most natural.

"April," says the author of the *Mirror of the Months* "is spring—the only spring month that we possess—the most juvenile of the months, and most feminine—the sweetest month of all the year; partly because it ushers in the May, and partly for its own sake, so far as any thing can be valuable without reference to any thing else. It is worth two May's, because it tells tales of May in every sigh that it breathes, and every tear that it lets fall. It is the harbinger, the herald, the promise, the prophecy, the foretaste of all the beauties that are to follow it—of all, and more—of all the delights of summer, and all the 'pride, pomp, and circumstance of glorious autumn.' It is fraught with beauties that no other month can bring before us, and

'It bears a glass which shews us many more.'

Its life is one sweet alternation of smiles and sighs and tears, and tears and sighs and smiles, till it is consummated at last in the open laughter of May."

By the same hand we are directed to observe, "what a sweet flush of new green has started up to the face of this meadow! And the new-born daisies that stud it here and there, give it the look of an emerald sky, powdered with snowy stars. In making our way to yonder hedgerow, which divides the meadow from the little copse that lines one side of it, let us not take the shortest way, but keep to the little footpath; for the young grass is as yet too tender to bear being trod upon; and the young lambs themselves, while they go cropping its crisp points, let the sweet daisies alone, as if they loved to look upon a sight as pretty and as innocent as themselves." It is further remarked that "the great charm of this month, both in the open country and the garden, is undoubtedly the infinite *green* which pervades it every where, and which we had best gaze our fill at while we may, as it lasts but a little while,—changing in a few weeks into an endless variety of shades and tints, that are equivalent to as many different colours. It is this, and the budding forth of every living member of the vegetable world, after its long winter death, that in fact constitutes *the spring*; and the sight of which affects us in the manner it does, from various causes—chiefly moral and associated ones; but one of which is unquestionably physical: I mean the sight of so much tender green after the eye has been condemned to look for months and months on the mere negation of all colour, which prevails in winter in our climate. The eye feels cheered, cherished, and regaled by this colour, as the tongue does by a quick and pleasant taste, after having long palated nothing but tasteless and insipid things.—This is the principal charm of spring, no doubt. But another, and one that is scarcely second to this, is the bright flush of blossoms that prevails over and almost hides every thing else in the fruit-garden and orchard. What exquisite differences and distinctions and resemblances there are between all the various blossoms of the fruit-trees; and no less in their general effect than in their separate details! The almond-blossom, which comes first of all, and while the tree is quite bare of leaves, is of a bright blush-rose colour; and when they are fully blown, the tree, if it has been kept to a compact head, instead of being permitted to struggle, looks like one huge rose, magnified by some fairy magic, to deck the bosom of some fair giantess. The various kinds of plum follow, the blossoms of which are snow-white, and as full and clustering as those of the almond. The peach and nectarine, which are now full blown, are unlike either of the above; and their sweet effect, as if growing out of the hard bare wall, or the rough wooden paling, is peculiarly pretty. They are of a deep blush colour, and of a delicate bell shape, the lips, however, divided, and turning backward, to expose the interior to the cherishing sun. But perhaps the bloom that is richest and most *promising* in its general appearance is that of the cherry, clasping its white honours all round the long straight branches, from heel to point, and not letting a leaf or a bit of stem be seen, except the three or four leaves that come as a green finish at the extremity of each branch. The other blossoms, of the pears, and (loveliest of all) the apples, do not come in perfection till next month."



Amanita muscaria.

AMANITA MUSCARIA.—FLY AMANITA.

CLASS XXIV. CRYPTOGRAMIA.—ORDER IV. FUNGI.

NATURAL ORDER, FUNGI.—THE MUSHROOM TRIBE.

MANY species of this order are used as food, or rather as condiments; and several of them are known to rank among the most active of the vegetable poisons. Accidents arising from the poisonous Fungi being taken through mistake for the esculent mushrooms, are frequent both in this country and on the continent, especially in France, where many species are eaten that are rejected by us. Almost the only ones in use in this country are the *Agaricus campestris* and *oreades*, the *deliciosus*, which the ancient Romans esteemed the greatest of luxuries, the truffle, and the morel. Even some of these, under certain circumstances, have proved injurious, if not poisonous; hence the greatest caution is necessary in selecting any species of this tribe for food. Haller informs us that the Russians eat the whole race, using the poisonous ones as means of intoxication. It appears, however, that these are used after a process of fermentation, so that their noxious effects are, probably, diminished. The poisonous species found in this country have not been correctly determined; those most commonly fatal are *Amanita muscaria*, and its varieties; the *Agaricus semiglobatus*, and *Agaricus globosus*.

The *Amanita muscaria* is one of the largest and most beautiful of the Agaric tribe, and really deserves the name of "imperial," applied to it by Batsch; "for the most indifferent person must be attracted by the glowing hues of its ample pileus, its regular form, tall pillar-like stipes—extremely conspicuous, even at a distance, in the shady recesses of its native woods." It is found in woods throughout the whole kingdom, and is extremely abundant in the Highlands of Scotland.

The pileus is from three to six inches in diameter, convex at first, at length nearly flat, striated at the margin, varying very much in colour, being mostly bright red or orange, but sometimes liver-coloured, yellowish, or even whitish, and beset with downy, angular warts. The warts are white, or yellowish, prominent, pretty regular, scattered over the surface, but sometimes wanting. The lamellæ are flat, adnate with the stipes, very numerous, broad, and whitish. The flesh is thick, and white, partaking to a small, depth of the colour of the pileus. The stipes are cylindrical, smooth, white, very straight, subsolid, from four to eight inches high, and bulbous at the base. The volva, according to Dr. Greville, is perfect only in extremely young plants, cracking immediately into pyramidal warts, which become less elevated, and more distinct, as the pileus expands, and generally leave a few traces upon the bulb, at the base of the stem.

QUALITIES AND CHEMICAL PROPERTIES.—Mushrooms are of rapid growth and speedy decay. When they putrefy, they give out an extremely unpleasant odour, and approach animal matter more closely than other vegetable substances. Braconnot, who, with M. Vauquelin, has analyzed a great number of species, distinguished the insoluble spongy portion, which characterises mushrooms by the name of *fungin*. It approaches woody fibre in its properties; but is sufficiently distinguishable by various characters, particularly by constituting a nourishing article of food, and being much less soluble in alkaline leys. Braconnot also ascertained the existence of two new acids in mushrooms. One of these is termed *boletic acid*, and consists of irregular four-sided prisms, of a white colour, and permanent in the air: the other acid, which constitutes a very general ingredient in mushrooms, is called *funyic acid*. Both may be obtained from the expressed juice of the *Boletus pseudo ignarius*, the latter also from *B. juglandis*, *Merulius cantharellus*, *Peziza nigra*, and *Phallus impudicus*. Proust has likewise discovered in them the benzoic acid, and phosphate of lime.

AMANITA muscaria. This was examined by Vauquelin, who extracted from it an animal matter, insoluble in alcohol, osmazome, a fatty matter, muriate, phosphate, and sulphate of potash.

POISONOUS EFFECTS. The symptoms which generally arise from eating the noxious Fungi, are pains of the stomach, nausea, &c.; sense of heat of the bowels, faintings, cramps of the lower extremities, con-

vulsions, sometimes general, sometimes partial, and unquenchable thirst succeed: the pulse is small, hard, and very frequent. When these symptoms, after having continued a certain time, do not diminish in consequence of the remedies administered, vertigo, stupor, and delirium, affect some subjects, and are only interrupted by pains and convulsions. In others there is no drowsiness; the pains and convulsions exhaust the strength, faintings and cold sweats come on, and death puts a period to this series of suffering, after having been foreseen and announced by the patient himself, who has not lost his senses for a single moment.

Poisonous Fungi do not in general manifest their action till six or eight hours after they are eaten, and twelve or sixteen occasionally elapse. In cows and other cattle, they have been known to produce nauseous milk, swellings of the abdomen, inflammation of the intestines, obstructions, diarrhoeas and death. In sheep, they are said to bring on a scirrhus liver, a cough, general wasting, and dropsy.

1. *Amanita muscaria*. In the Toxicologie Générale of M. Orfila, several cases are detailed of the fatal effect of this species on the animal economy. Several French soldiers ate, at two leagues from Polosk, in Russia, mushrooms of the above kind. Four of them, of a robust constitution, who considered themselves proof against the consequences under which their feebler companions were beginning to suffer, refused obstinately to take an emetic. In the evening the following symptoms appeared: anxiety, sense of suffocation, ardent thirst, intense gripping pains, a small and irregular pulse, changed expression of countenance, violet tint of the nose and lips, with general trembling. These symptoms becoming worse, they were carried to the hospital. Coldness and livid colour of the limbs, a dreadful delirium, and acute pains accompanied them to the last moment. One of them sunk a few hours after his admission into the hospital; the three others had the same fate in the course of the night. Haller relates that six persons of Lithuania perished at one time by eating the *A. muscaria*; and that in Kamtschatka it had driven others raving mad. The inhabitants of the latter country prepare a liquor from it, and from a species of *Epilobium*, which, taken in small quantities, inebriates. It has not, however, been clearly ascertained whether the species which grows in this country, and in the south of Europe, be the same as that which is found in Kamtschatka. The properties of this variety are exceedingly curious, and have been fully described in an Essay by Dr. Langsdorf, quoted by Dr. Greville. The inhabitants of the north-eastern parts of Asia use it in the same manner as ardent spirits, or wine, to produce intoxication. These fungi are collected in the hottest months, and hung up by a string in the air to dry; some dry of themselves on the ground, and are said to be far more narcotic than those artificially preserved. Small deep-coloured specimens, thickly covered with warts, are also said to be more powerful than those of a larger size and paler colour.

The usual mode of taking this fungus is to roll it up like a bolus, and swallow it without chewing, which the Kamtschatdales say, would disorder the stomach. It is sometimes eaten fresh in soups and sauces, and then loses much of its intoxicating property; when steeped in the juice of the berries of *Vaccinium uliginosum*, its effects are those of strong wine. One large, or two small fungi, is a common dose to produce a pleasant intoxication for a whole day, particularly if water be drank after it, which augments the narcotic principle. The desired effect comes on one or two hours after taking the fungus. Giddiness and drunkenness result from the fungus, in the same manner as from wine or spirits. Cheerful emotions of the mind are first produced, involuntary words and actions follow, and sometimes at last an entire loss of consciousness. It renders some remarkably active, and proves highly stimulant to muscular exertion; with too large a dose, violent spasmodic effects are produced.

So very exciting to the nervous system, in some individuals, is this fungus, that the effects are often very ludicrous. If a person under its influence wishes to step over a straw, or small stick, he takes a stride or a jump sufficient to clear the trunk of a tree; a talkative person cannot keep secrets or silence; and one fond of music is perpetually singing.

Linnæus says, that flies are killed by this fungus, when infused in milk, hence its name *muscarius*; and the same author also tells that the expressed juice, rubbed on walls and bedsteads, effectually expels bugs. In the north of Europe, it is sometimes administered in doses of from ten to thirty grains, by the vulgar in epilepsy, palsy, and as an application to foul ulcers. More recently a tincture of it has been employed internally by M. Reinhard, for scaly affections of the skin, and in obstinate expectorations, both mucous and purulent. The dose is from thirty to forty drops in any proper vehicle.



Spidendrum nutan.

EPIDENDRUM NUTANS.—NODDING EPIDENDRUM.

CLASS XX. GYNANDRIA.—ORDER I. MONANDRIA.

NATURAL ORDER, ORCHIDACEÆ.—THE ORCHIS TRIBE.

CHARACTER OF THE GENUS, EPIDENDRUM. External folioles of the perigone spreading, nearly equal; the internal equal, or narrower, very seldom broader. The Labellum, by means of its claws, either entirely or partly cohering to the margins of the column, the limb entire or divided, the disc generally callous, ribbed, or tuberculated; the limb is also occasionally prolonged into a spur, adhering to the ovary. Column elongated, clinandrium margined, often fimbriated. Anther fleshy, two-four-celled. Pollen-masses four, with a similar number of double tails.

DESCRIPTION OF THE SPECIES, EPIDENDRUM NUTANS. EPIPHYTE. Stem simple, round, leaves distichous, undulating, obtuse. Inflorescence racemose, nodding, many-flowered. Flowers of a greenish colour, the external folioles oblong-lanceolate, the internal linear-lanceolate, obtuse, spreading; labellum three-lobed, lateral lobes cordate and ovate, the central lobe truncated, apiculate, having two callous points at the base, and three elevated veins. Ovary cohering with the prolonged spur of the labellum, so as to form a cuniculus.

POPULAR AND GEOGRAPHICAL NOTICE. The very extensive genus *Epidendrum*, containing nearly one hundred species, is peculiar to the New World, more especially the Southern part of America, and the West Indian Islands; several are natives of Mexico, but scarcely any extend farther North; yet the only epiphyte in the United States belongs to this genus, viz: *Epidendrum conopseum* (Robert Brown), which is found on the Magnolias of Carolina and Georgia, and hence sometimes called *Epidendrum Magnoliæ*. The species now figured grows on trees among the mountains of the Western side of the island of Jamaica. Many species of *Epidendrum* are remarkable for the exquisite odour of their flowers, which they are most apt to diffuse in the evening or during the night. Of such is the one now before us, which is thus among the number of the plants

"That keep
Their odour to themselves all day,
But when the sun-light dies away,
Let the delicious secret out,
To every breeze that roams about."

MOORE.

INTRODUCTION; WHERE GROWN; CULTURE. Brought to England in 1793. It grows in a pot on the stage of the stove, and requires sandy loam, with a large quantity of potsherds at the bottom, to ensure free drainage, which is the great requisite of these plants; or it may be suspended from the roof, attached to a branch.*

Prognostics of Weather and Horologe of Flora.—For Spring and Summer:†

Chickweed.—When the flower expands boldly and fully, no rain will happen for four hours or upwards: if it continues in that open state, no rain will disturb the summer's day: when it half conceals its miniature flower, the day is generally showery; but if it entirely shuts up, or veils the white flower with its green mantle, let the traveller put on his great coat, and the ploughman, with his beasts of drought, expect rest from their labour.

Siberian Sowthistle.—If the flowers of this plant keep open all night, rain will certainly fall the next day.

Trefoil.—The different species of trefoil always contract their leaves at the approach of a storm: hence these plants have been termed the husbandman's barometer.

African Marygold.—If this plant opens not its flowers in the morning about seven o'clock, you may be sure it will rain that day, unless it thunders.

The convolvulus also, and the pimpernel *anagalis arvensis*, fold up their leaves on the approach of rain: the last in particular is termed the poor man's weather-glass.

White thorns and dog-rose bushes.—Wet summers are generally attended with an uncommon quantity of seed on these shrubs; whence their unusual fruitfulness is a sign of a severe winter.

* The Botanist.

† From the "Perennial Calendar."

Besides the above, there are several plants, especially those with compound yellow flowers, which nod, and during the whole day turn their flowers towards the sun, viz: to the east in the morning, to the south at noon, and to the west towards evening; this is very observable in the sowthistle, *sonchus arvensis*: and it is a well-known fact, that a great part of the plants in a serene sky expand their flowers, and as it were with cheerful looks behold the light of the sun; but before rain they shut them up, as the tulip.

The flowers of the alpine whitlow grass, *draba alpina*, the bastard feverfew, *parthenium*, and the winter-green, *trientalis*, hang down in the night as if the plants were asleep, lest rain or the moist air should injure the fertilizing dust.

One species of woodsorrel shuts up or doubles its leaves before storms and tempests, but in a serene sky expands or unfolds them, so that the husbandman can pretty clearly foretell tempests from it. It is also well known that the mountain ebony, *bauhinia*, sensitive plants, and cassia, observe the same rule.

Besides affording prognostics, many plants also fold themselves up at particular hours, with such regularity, as to have acquired particular names from this property. The following are among the more remarkable plants of this description:—

Goatsbeard.—The flowers of both species of tragopogon open in the morning at the approach of the sun, and without regard to the state of the weather, regularly shut about noon. Hence it is generally known in the country by the name of go to bed at noon.

The princess' leaf, or four o'clock flower, in the Malay Islands, is an elegant shrub so called by the natives, because their ladies are fond of the grateful odour of its white leaves. It takes its generic name from its quality of opening its flowers at four in the evening, and not closing them in the morning till the same hour returns, when they again expand in the evening at the same hour. Many people transplant them from the woods into their gardens, and use them as a dial or a clock, especially in cloudy weather.

The evening primrose is well known from its remarkable properties of regularly shutting with a loud popping noise, about sunset in the evening, and opening at sunrise in the morning. After six o'clock, these flowers regularly report the approach of night.

The tamarind tree *parkinsonia*, the nipplewort *lapsana communis*, the water lily *nymphaea*, the marygolds *calendulae*, the bastard sensitive plant *aeschynomene*, and several others of the diadelphia class, in serene weather, expand their leaves in the daytime, and contract them during the night. According to some botanists, the tamarind tree enfolds within its leaves the flowers or fruit every night, in order to guard them from cold or rain.

The flower of the garden lettuce, which is in a vertical plane, opens at seven o'clock, and shuts at ten.

A species of serpentine aloe, without prickles, whose large and beautiful flowers exhale a strong odour of the vanilla during the time of its expansion, which is very short, is cultivated in the imperial garden at Paris. It does not blow till towards the month of July, and about five o'clock in the evening, at which time it gradually opens its petals, expands them, droops, and dies. By ten o'clock the same night, it is totally withered, to the great astonishment of the spectators; who flock in crowds to see it.

The cerea, a native of Jamaica and Vera Cruz, expands an exquisitely beautiful coral flower, and emits a highly fragrant odour, for a few hours in the night, and then closes to open no more. The flower is nearly a foot in diameter; the inside of the calyx, of a splendid yellow; and the numerous petals are of a pure white. It begins to open about seven or eight o'clock in the evening, and closes before sunrise in the morning.

The flower of the dandelion possesses very peculiar means of sheltering itself from the heat of the sun, as it closes entirely whenever the heat becomes excessive. It has been observed to open, in summer, at half an hour after five in the morning, and to collect its petals towards the centre about nine o'clock.

Linnaeus has enumerated forty-six flowers, which possess this kind of sensibility: he divides them into three classes.—1. Meteoric flowers, which less accurately observe the hour of folding, but are expanded sooner or later according to the cloudiness, moisture, or pressure of the atmosphere. 2. Tropical flowers, that open in the morning and close before evening every day, but the hour of their expanding becomes earlier or later as the length of the day increases or decreases. 3. Equinoctial flowers, which open at a certain and exact hour of the day, and for the most part close at another determinate hour.



Whitfieldia lateritia.

WHITFIELDIA LATERITIA.—BRICK-COLOURED WHITFIELDIA.

CLASS XIV. DIDYNAMIA.—ORDER II. ANGIOSPERMIA.

NATURAL ORDER, ACANTHACEÆ.—THE JUSTICIA TRIBE.

GENERIC CHARACTER.—*Calyx* ample, coloured, sub-infundibuliform, with two bracts at the base, deeply four or five cleft; segments lanceolate, acute, erect, concave, nerved; bracts mostly coloured, opposite, obovate, acute, three-nerved, appressed. *Corolla* between campanulate and funnel-shaped, twice the length of the calyx; tube with fifteen elevated ridges; limb two-lipped, spreading; upper lip smaller, two-cleft; lower lip three cleft, all the segments ovate, acute. *Stamens* four, didynamous, almost included, with an obsolete rudiment of a fifth. *Filaments* smooth. *Anthers* oblong-linear, two-celled; cells opposite, dehiscing longitudinally. *Ovary* compressed, ovate, glabrous, two-celled; cells bi-ovulate; ovules ascending. *Disk* hypogynous, large, fleshy, cup-shaped. *Style* scarcely exceeding the stamens, thread-shaped. *Stigma* small, capitate. *Fruit* unknown.

SPECIFIC CHARACTER.—*Plant* a smooth low-branching evergreen shrub. *Branches* spreading, terete, rather tortuous. *Leaves* opposite, entire, ovate or oblong-ovate, somewhat leathery, waved, penninerved. *Petioles* short, flat or slightly grooved above. *Racemes* terminal, somewhat one-sided, deflexed, *Pedicels* opposite (brachiate or cruciate,) drooping, bracteate at the base. *Bracteas* lanceolate, partially membranaceous, the lowest pair leaf-like; two other large, ovate, acute, opposite bracteas at the base of the calyx, appressed to it. *Flowers* slightly pubescent; calyx, corolla, and calycine bracts all brick-coloured. *Stamens* and *style* shorter than the corolla.

About the middle of last November we were favoured with specimens of this handsome stove shrub, by Mr. Jennings, the Earl of Derby's gardener at Knowsley Hall, Lancashire, and from these our figure was prepared. Mr. Jennings informs us, that it was received there in 1841, from Sierra Leone, and has proved an excellent thing, flowering through most of the winter months. Towards the close of last year, and for two or three months after, we observed specimens from the same source, flowering in the Royal Botanic Gardens at Kew.

On bestowing the above appellation, Sir William Hooker observes, "As a genus of Acanthaceæ, I can refer it to no described one, though its affinity (yet not very close) is probably with *Geissomeria*, Lindl.; and I have dedicated it to Thomas Whitfield, Esq., who at the risk of his life, and as we have reason to know, with much injury to his constitution, has made several voyages to, and journeys into, the interior of Western-tropical Africa, and formed extensive collections of living plants and animals. The majority of these have been sent to the Right Hon. the Earl of Derby; and the Royal Gardens of Kew have not failed to benefit by that distinguished nobleman's love and patronage of science."

The species is a shrubby evergreen of good appearance, and will no doubt prove a useful thing in collections where it is essential to keep up a good display of blossom during the duller months. The blossoms are not remarkably bright coloured, but they are plentifully produced in racemes which stand out well above the foliage; most of the flowers on a raceme, moreover, point one way.

As it admits of ready increase by cuttings taken off during the growing season, and placed in a damp heat to strike root, it will doubtless soon become plentiful. For those who have not space to keep large specimens, the best plan will be to renew them from cuttings every or every other year, and discard the old ones. Young plants thus formed early in summer, and favourably treated, will make neat dwarf flowering bushes against winter.

By pruning back rather closely in spring, reducing the ball of earth, and then planting in a smaller-sized pot, the old plants will break vigorously. Their strength must be supported afterwards with more pot-room, and liberal watering, to produce large-sized specimens. As the quantity of flower depends in a great measure on the number of branches, it will be proper to facilitate the protrusion of side-growths by shortening the earlier summer shoots. Those who possess a stove conservatory will find this a suitable shrub for planting in a border.

It may be grown in a loamy soil, mixed with about a third part of peat, or the same proportion of leaf mould and dung, accordingly as the aim is to form small or large plants.*

The "Mirror of the Months," tells us that with June,—Summer is come—come, but not to stay; at least, not at the commencement of this month; and how should it, unless we expect that the seasons will be kind enough to conform to the devices of man, and suffer themselves to be called by what name and at what period *he* pleases? He must die and leave them a legacy (instead of they him) before there will be any show of justice in this. Till then the beginning of June will continue to be the latter end of May, by rights; as it was according to the *old style*. And, among a thousand changes, in what one has the old style been improved upon by the new? Assuredly not in that of substituting the *utile* for the *dulce*, in any eyes but those of almanack-makers. Let all lovers of spring, therefore be fully persuaded that, for

* We are indebted to that delightful work 'Paston's Magazine of Botany' for our figure and description.

the first fortnight in June, they are living in May. We are to bear in mind that all shall thus be gaining instead of losing, by the impertinence of any breath, but that of heaven, attempting to force spring into summer, even in name alone."

It seems fitting thus to introduce the following passages, and invite the reader to proceed with the author, and take a bird's eye view of the season.

Spring may now be considered as employed in completing her toilet, and, for the first weeks of this month, putting on those last finishing touches which an accomplished beauty never trusts to any hand but her own. In the woods and groves also, she is still clothing some of her noblest and proudest attendants with their new annual attire. The oak until now has been nearly bare; and, of whatever age, has been looking old all the winter and spring, on account of its crumpled branches and wrinkled rind. Now, of whatever age, it looks young, in virtue of its new green, lighter than all the rest of the grove. Now, also, the stately walnut (standing singly or in pairs in the fore-court of ancient manor-houses, or in the home corner of the pretty park-like paddock at the back of some modern Italian villa, whose white dome it saw rise beneath it the other day, and mistakes for a mushroom,) puts forth its smooth leaves slowly, as "sage grave men" do their thoughts; and which over-caution reconciles one to the beating it receives in the autumn, as the best means of at once compassing its present fruit, and making it bear more; as its said prototypes in animated nature are obliged to have their brains cudgelled, before any good can be got from them.

These appearances appertain exclusively to the spring. Let us now (however reluctantly) take a final leave of that lovely season, and at once step forward into the glowing presence of summer—contenting ourselves, however, to touch the hem of her rich garments, and not attempting to look into her heart, till she lays that open to us herself next month: for whatever schoolboys' calendar-makers may say to the contrary, Midsummer never happens in England till July.

To saunter at mid June, beneath the shade of some old forest, situated in the neighbourhood of a great town, so that paths are worn through it, and you can make your way with ease in any direction, gives one the idea of being transferred, by some strange magic, from the surface of the earth to the bottom of the sea! (I say it gives one this idea; for I cannot answer for more, in matters of so arbitrary a nature as the association of ideas.) Over head, and round about, you hear the sighing, the whispering, or the roaring (as the wind pleases) of a thousand billows; and looking upwards, you see the light of heaven transmitted faintly, as if through a mass of green waters. Hither and thither, as you move along, strange forms flit swiftly about you, which may, for any thing you can see or hear to the contrary, be exclusive natives of the new world in which your fancy chooses to find itself: they may be *fishes*, if that pleases; for they are as mute as such, and glide through the liquid element as swiftly. Now and then, indeed, one of larger growth, and less lubricated movements, lumbers up from beside your path, and clattering noisily away to a little distance, may chance to scare for a moment your submarine reverie. Your palate too may perhaps here step in, and try to persuade you that the cause of interruption was not a fish but a pheasant. But in fact, if your fancy is one of those which are disposed to "listen to reason," it will not be able to lead you into spots of the above kind without your gun in your hand,—one report of which will put all fancies to flight in a moment, as well as every thing else that has wings. To return, therefore, to our walk,—what do all these strange objects look like, that stand silently about us in the dim twilight, some spring straight up, and tapering as they ascend, till they lose themselves in the green waters above—some shattered and splintered, leaning against each other for support, or lying heavily on the floor, as if they had lain dead there for ages, and become incorporate with it? what do all these seem, but wrecks and fragments of some mighty vessel, that has sunk down here from above, and lain weltering and wasting away, till these are all that is left of it! Even the floor itself on which we stand, and the vegetation it puts forth, are unlike those of any other portion of the earth's surface, and may well recall, by their strange appearance in the half light, the fancies that have come upon us when we have read or dreamt of those gifted beings, who like *Ladurlad* in *Kehama*, could walk on the floor of the sea, without waiting, as the visitors at watering-places are obliged to do, for the tide to go out.

Stepping forth into the open fields, what a bright pageant of summer beauty is spread out before us!—Everywhere about our feet flocks of wild flowers

"Do paint the meadow with delight."

The woods and groves, and the single forest trees that rise here and there from out the bounding hedge-rows, are now in full foliage; all, however, presenting a somewhat sombre, because monotonous, hue, wanting all the tender newness of the spring, and all the rich variety of the autumn. And this is the more observable, because the numerous plots of cultivated land, divided from each other by hedge-rows, and looking, at this distance, like beds in a garden divided by box, are nearly all still invested with the same green mantle; for the wheat, the oats, the barley, and even the early rye, though now in full flower, have not yet become tinged with their harvest hues. They are all alike green; and the only change that can be seen in their appearance is that caused by the different lights into which each is thrown, as the wind passes over them. The patches of purple or of white clover that intervene here and there, and are now in flower, offer striking exceptions to the above, and at the same time load the air with their sweetness. Nothing can be more rich and beautiful in its effect on a distant prospect at this season, than a great patch of purple clover lying apparently motionless on a sunny upland, encompassed by a whole sea of green corn, waving and shifting about at every breath that blows.



Glycyrrhiza glabra.

GLYCYRRHIZA GLABRA.—THE LIQUORICE.

CLASS XVII. DIADELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

Fig. (a) represents a flower magnified; (b) the vexillum; (c) alæ; (d) carina; (e) the nine united stamens; (f) germen and style; (g) the legume; (h) a seed.

THE common Liquorice is a native of the south of Europe; but has been cultivated in our gardens ever since the time of Turner in 1562. Stowe informs us that "the planting and growing of licorish began about the first year of Queen Elizabeth." It was formerly cultivated to a considerable extent at Pontefract, in Yorkshire, Worksop, in Nottinghamshire, and Godalming, in Surry; but the greater part of what is now used in England, is grown at Mitcham, Battersea, Fulham, and other places near London. It flourishes most in a light sandy soil, producing its flowers in August.

The root is perennial, running very deep into the ground, and creeping to a considerable distance. When full grown it is as thick as the thumb, round, slender, flexible, and furnished with a few scattered fibres; of a brownish colour externally, yellowish, succulent, and fibrous within. From the root proceed three or four erect, herbaceous stems, of a pale green colour, and striated; with few branches, to the height of four feet and upwards. The leaves are alternate, pinnated, and composed of five or six pairs of leaflets, with a terminal one standing on a longish footstalk; the leaflets are ovate, blunt, veined, petiolated, nearly two inches long, and of a yellowish green colour, and clammy on the under-side. The flowers are small, bluish or purplish, and papilionaceous, standing on naked pedicels, in long axillary spikes. The calyx is persistent, tubular, cut obliquely into two lips, and divided into narrow pointed segments. The corolla consists of an ovate, lanceolate, obtuse, erect, concave *vexillum*; two oblong, obtuse *alæ*, and a similarly shaped but shorter *carina*. The filaments are ten, nine of which are united at the base, and all of them furnished with simple roundish anthers; the germen is short, with a tapering style and blunt stigma. The legumes are oblong, smooth, compressed, pointed, and 1-celled, containing two or three small kidney-shaped seeds.

From Dr. Fleming's Catalogue of Indian plants, it appears that liquorice grows in the Bengal provinces; and Dr. Ainslie asserts it to be a product of the Malabar coast, where it is called *irattimadhiram*. The greater part, however, of what is sold in Lower India, is imported from Persia, where it grows in great abundance in the date groves near Bussora, and on the banks of the Sewund river. The roots of the wild Jamaica-liquorice (*Abrus precatorius*, Lin.) a beautiful climbing shrub, resemble so much the true liquorice root in appearance and qualities, that they are often sold in India for it, and used as a substitute.

CULTURE.—The liquorice is propagated by cuttings of the small roots divided into sections, five or six inches long, each having one or more good buds. The proper season for procuring the sets for planting, is in open weather, about the middle of March. A light sandy soil is the best adapted for this kind of crop, as its goodness consists in the length of the roots. The ground should be trenched three spades deep; then having traced out rows a yard asunder, plant the sets along each row, at intervals of eighteen inches, covering them entirely with mould. The London gardeners usually sow a crop of onions or lettuce on the same ground the first year, between the rows. During spring and summer, all weeds must be kept down by the hoe, care being taken not to cut off the top shoots of the liquorice plants, as it would greatly injure them. In the autumn, when the stems of the liquorice are in a decaying state, they should be cut down, and a very little rotten dung spread upon the surface. In the following spring, about March, the ground should be slightly dug between the rows of liquorice, burying the remaining part of the dung, being very careful not to cut the roots. During the summer they must be kept quite clean by occasional hoeing. The same

operations must be annually performed, so as to keep the ground and plants in perfect order. In three years after planting, the roots of the liquorice will be fit to take up. The proper season for this is from November till February; for they should neither be taken up before the stalks are fully decayed, nor deferred till late in the spring, otherwise the roots will be apt to shrivel and diminish in weight. In taking them up, the small side roots are trimmed off, the best divided into lengths for fresh sets, and the main roots tied in bundles for sale. They are sold to the brewers and druggists; the price of the best roots varying from 40s. to 3*l*. per cwt. The *Glycyrrhiza echinata*, or prickly-podded liquorice, is sometimes cultivated, but its roots are less sweet and succulent than the official species.

QUALITIES.—Liquorice root is inodorous; it has a sweet mucilaginous taste, and is almost the only saccharine substance that does not produce thirst. It yields all its virtues to water, by coction; but alcohol extracts only the sweetness, with a small portion of mucilage. The medical properties of the root are supposed to depend on a distinct principle, to which has been appropriated the name *glycyrrhizine*. Professor Döbreiner prepares it by precipitating the infusion of liquorice by the proto-muriate of copper, washing the precipitate with water, and then boiling it in alcohol, which dissolves the glycyrrhizine, and affords it again on evaporation. It is soluble in water, and precipitated from its solution by the acids. Its taste is sweet; it is brittle, semi-transparent, and has a resinous appearance.

The *extract* is directed to be prepared by macerating for twenty-four hours, one pound of liquorice-root sliced, in a gallon of boiling water; then boiling down to four pints, straining the hot liquor, and evaporating it to a proper consistence. A purer extract may be made by a repetition of the process of solution and evaporation; and is kept in the shops under the name of “refined liquorice.” The extract is, however, usually prepared on a large scale abroad, and is imported into this country, in an impure state, particularly from Spain. The powder of liquorice usually sold, is often mixed with flour, and probably too often with substances not quite so wholesome; the best sort is of a brownish yellow colour, (the fine pale yellow, being generally sophisticated,) and of a very rich sweet taste, much more agreeable than that of the fresh root.

MEDICAL PROPERTIES AND USES.—Unlike other sweets, liquorice has had the reputation from time immemorial of allaying thirst, which property is attributed, by Cullen, to an acrid and bitter matter, which follows the extraction of the sweetness by chewing. In consequence of this virtue, it was designated by the name *‘dysphor*, and according to Galen, it alleviates the desire for drink in dropsical cases. With us it is principally used as a pleasant demulcent, and in the form of a decoction; or, combined with other mucilaginous substances, is frequently prescribed for severe colds, and for those other affections of the air passages requiring lubrication. It is also useful to obtund the acrimony of vitiated secretions in the stomach and bowels; or, as a substitute for the natural mucus of the stomach, when deficient in quantity. From its bulk it is seldom given in substance, but a tea-cupful of a decoction of the root may be frequently drank. Under the form of extract it is in common use as a demulcent, in coughs and hoarsenesses; and is sometimes taken to relieve acidity of the stomach. It is also employed to cover the unpleasant taste of several bitter and nauseous drugs, particularly aloes and Peruvian bark.

OFF. PREP.—Decoctum Sarsaparillæ comp. *L. D.*

Infusum Lini. *L.*

Pil. Hydragryi. *L. D.*

Confectio Sennæ. *L. E.*

Paper has recently been fabricated in France from the liquorice root, or the root of the *glycyrrhiza germanica*. It is said that this paper is very white, and does not require any size in its preparation, while it can be manufactured at a price much lower than that made from rags.



Acacia cultriformis.

ACACIA CULTRIFORMIS.—COULTER-SHAPED-LEAVED ACACIA.

CLASS XXIII. POLYGAMIA.—ORDER I. MONECIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

GENERIC CHARACTER—*Calyx* four or five-toothed. *Petals* four or five, sometimes free, and sometimes joined together into a four or five-cleft corolla. *Stamens* variable in number, from 10 to 200 in each flower. *Legume* continuous, dry, two-valved.—*Don's Gard. and Botany*.

SPECIFIC CHARACTER.—*Branches* smooth, angular; *phyllodia* cultriform, ending in an acute hooked mucrone, which leans to one side, and furnished with a gland on the middle of the upper margin, one-nerved, the nerve nearly parallel with the lower margin; *heads* crowded: disposed in racemes.

Acacia is a very extensive genus, including upwards of 320 known species, most of which are hand-some trees or shrubs. Some of them are physiologically interesting, not only for the conversion of their stipules into spinacules, but, as in the New Holland *Acacia*, for the abortion of the true leaves, and the expansion of the petioles into leaf-like organs, called *Phyllodia*, the normal compound foliage being present only in the seedling plants. The *phyllodia* in *A. ornithophora* are curious in their shape, having a strong resemblance in their outline to the figure of a bird; and hence the specific name. *A. pilosa* is remarkable for having stipules as well as thornlets, the spinacules in general being the metamorphosed stipules: and *A. cornigera*, for its thorny stipules being extremely large, and so very similar to the horns of an ox, that the plant in common parlance has received a fearful name.

The bushy *Acacia* form excellent hedges, and in their wild state impenetrable thickets, such for example as *A. detinens*, which so often arrests the traveller by its thorns, and *A. latronum*, the groves of which are not only secure retreats to the smaller animals, but become as it were cities of refuge to rogues and runaways, for pursuit is vain where it spreads its protecting arms; and hence indeed it has been specifically called the "Rogue's *Acacia*."

Other *Acaciæ*, on the contrary, are of economical importance, such especially as the gum-bearing species, and those which abound in astringent principles fit for tanning.

Erythrophleum Guineense is the *Gregree* or Ordeal-tree of Sierra Leone and Guinea. The generic name refers to the red juice with which the stem and branches abound. This tree, like our trial by battle, is appealed to by the ignorant natives to declare God's judgment, and the effects which follow the ordeal are considered as proofs of the guilt or innocence of accused persons.

The juice, or a decoction of the wood is given to the accused to drink, and if vomiting occurs without being followed by death, the parties are declared innocent; but if they die, they are condemned as guilty.

The irritability of the stomach or the will of the judge, in reality is thus the gauge of guilt! for, if the fault be slight, or the judge inclined to favour the prisoner, a portion of the bark is given him to chew, which is invariably rejected by the stomach, and the accused escapes! but if the charge be grave, or the judge unfavourable, the decoction of the wood is given, and then the accused has little chance.

The savages of America have consecrated the *acacia* to the genius of chaste love; their bows are made from the incorruptible wood of this tree, their arrows are armed with one of its thorns. These fierce children of the desert, whom nothing can subdue, conceive a sentiment full of delicacy; perhaps what they are unable to express by words, but they understand the sentiment by the expression of a branch of blooming *acacia*. The young savage understands this seducing language, and receives blushing the homage of him who has won her heart by respect and by love.

It is not more than a century since the forests of Canada yielded us this beautiful tree. The botanist Robin, who first brought it us, gave it his name. The *acacia*, when spreading its light shade in our groves, with its scented flowers, and sweet and fresh verdure, seems to prolong the spring. The nightingale loves to confide its nest to this new inhabitant of our climate; the lovely bird, assured by the long and strong thorns which protect its family, sometimes descends upon the lowest branches of the tree, to make its ravishing notes the better heard.

The *acacia* has been made the emblem of domestic beauty by an anonymous writer, who thus speaks of it:—"Tints of the white, the golden, and the red rose are beautifully intermingled with the rich blossoms of the *acacia*. It is found in the most retired places, and it blooms the fairest in the closeness of its own foliage. It loves the mossy rock and the solitary grove, and pines away in the garden and crowded parterre. Nourmahal sings:—

Our rocks are rough, but smiling there
The *acacia* waves her yellow hair,
Lonely and sweet, nor loved the less

For flowering in a wilderness—
Then come—thy Arab maid will be
The loved and lone *acacia* tree.

In the earlier months of the year there are few plants more engaging, or more useful in the decoration of the greenhouse, than the different species of *Acacia*, laden with an almost over-abounding number of their unassuming and modest-looking globular heads of golden flowers. The light, airy, and elegant appearance of the slender branches and small phyllodia, form, even when not enlivened with bloom, an agreeable variation placed in the greenhouse amongst shrubs of stouter growth, and leaves of more ample dimensions. Kept in a dwarf state by repeated pruning and shortening back the young shoots, *A. cultriformis* forms an excellent plant to place in the drawing-room during the flowering season; or it may be planted in the border of a conservatory with great propriety, and if allowed to grow in its natural way, will speedily form a large tree. Even in a pot it will attain the height of fifteen or twenty feet in a few years, if not kept down by pruning.

Acacias will succeed tolerably well in almost any good garden mould, but that which appears most suitable to them, is composed of about two-thirds sandy loam, and the remainder a fibrous open peat earth. They require a liberal supply of water during the time they are flowering, and whilst forming their young shoots. They may be propagated by cuttings inserted in sand, and treated in the usual way.

"We seldom see a parterre of flowers, on a fine summer's day, in which the butterfly and the bee are not present,

"Feeding upon their pleasures bounteously."

The murmur of bees is a grateful sound—it tells of sunshine and sweet odours; it is one of those gentler tones of nature's voice which have a kind and soothing influence on the spirits; like the whisper of a gentle air among the leaves; the sigh of the long grass, as it bends before the breeze; or the murmur of a neighbouring rannel. It could not then be overlooked by the Poet:—

"Him to soft slumbers call
The babbling brooks, the fall
Of silver fountains, and the unstudied hymns
Of eagleless birds, whose throats
Pour forth the sweetest notes;
Shrill through the crystal air the music swims;
To which the humming bee

Keeps ceaseless company,
Flying solicitous from flower to flower,
Tasting each sweet that dwells
Within their scented bells;
Whilst the wind sways the forest, bower to bower,
That evermore, in drowsy murmurs deep,
Sings in the air, and aids descending sleep."

WIFFEN'S GARCILASSO.

"From sapling trees, with lucid foliage crown'd,
Gay lights and shadows twinkled on the ground:
Up the tall stems luxuriant creepers run,
To hang their silver blossoms in the sun;

Deep velvet verdure clad the turf beneath,
Where trodden flowers their richest odours breathe;
O'er all the bees with murmuring music flew
From bell to bell, to sip the honied dew."

MONTGOMERY.

The climate of this country is not, perhaps, the most favourable for the production of flowers; yet we have a power of enjoying those we have, which inhabitants of warmer climates often have not. In the East, it is true, the country is adorned with the most magnificent flowers, springing up spontaneously and abundantly; whole fields are brilliant with tulips, anemonies, and roses; but the bright sun, which gives them life and beauty, forbids man to walk abroad during many hours in the day, from its insufferable heat. Persia is, perhaps, supereminently the country of flowers, of the rose in particular. Japan, too, has magnificent flowers; which, to be able to enjoy, the people have a quantity of them within doors. The Japanese are passionately fond of flowers, and frequently name their women from them. In Constantinople they are very much neglected. Tournefort remarks, that the Turks take little care of their gardens in general, bestowing their attention almost entirely upon their melons and cucumbers.

In Tripoli, on the celebration of a wedding, the baskets of sweetmeats, &c. sent as wedding presents, are covered with flowers; and although it is well known that they frequently communicate the plague, the inhabitants will even prefer running the risk, when that dreadful disease is abroad, rather than lose the enjoyment they have in their love of flowers. When a woman in Tripoli dies, a large bouquet of fresh flowers, if they can be procured, if not, of artificial, is fastened at the head of her coffin. Upon the death of a Moorish lady of quality, every place is filled with fresh flowers and burning perfumes: at the head of the body is placed a large bouquet, of part artificial, and part natural, and richly ornamented with silver; and additions are continually made to it. The author who describes these customs also mentions a lady of high rank, who regularly attended the tomb of her daughter, who had been three years dead: she always kept it in repair, and, with the exception of the great mosque, it was one of the grandest in Tripoli. From the time of the young lady's death, the tomb had always been supplied with the most expensive flowers, placed in beautiful vases; and, in addition to these, a great quantity of fresh Arabian Jessamines, threaded on thin slips of the Palm-leaf, were hung in festoons and tassels about this revered sepulchre. The mausoleum of the royal family, which is called the *Turbar*, is of the purest white marble, and is filled with an immense quantity of fresh flowers; most of the tombs being dressed with festoons of Arabian Jessamine and large bunches of variegated flowers, consisting of Orange, Myrtle, Red and White Roses, &c. They afford a perfume which those who are not habituated to such choice flowers can scarcely conceive. The tombs are mostly of white, a few inlaid with coloured marble. A manuscript Bible, which was presented by a Jew to the Synagogue, was adorned with flowers; and silver vases filled with flowers, were placed upon the ark which contained the sacred M.S.*

* *Flora Domestica.*



Delichos purpurea.

DOLICHOS PRURIENS.—COW-HAGE DOLICHOS.

CLASS XVII. DIADELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

FIG. (a) represents the carina; (b) anthers; (c) pistil; (d) seed.

THE Cow-hage or Cow-itch, *Dolichos*, the hairy pods of which have been long celebrated as an anthelmintic, grows spontaneously in the mountainous woods of Martinique, on the banks of rivers; also in the East Indies, where it flowers in the cool months, from September to March. It appears to have been cultivated in England in the time of Ray, and now is not an uncommon inhabitant of our stoves; but the plant seldom blossoms in this country.

The root is perennial and fibrous. The stem is herbaceous, climbing, cylindrical, tomentose, divided into many branches, which twist round the neighbouring trees, and rise to a considerable height. The leaves are ternate, upon footstalks, from six to fourteen inches long, placed alternately at the distance of a foot from each other; the central leaflet is rhomboidal, the two lateral ones oblique, and all of them entire, pointed, from three to five inches long, waved on the edges, smooth on the upper surface, and hairy beneath. The flowers are papilionaceous, large, inodorous, of a reddish, or rich violet colour, and placed mostly in ternaries, upon short pedicels, in pendulous, solitary spikes, about a foot in length, which hang from the axillæ of the leaves, and make a magnificent appearance. The proper flower stalks are about half an inch long, furrowed, hairy, and furnished with small stipulæ. The calyx is bell-shaped, gibbous at the base, downy, divided into two lips, of which the upper is smaller, semiovate; the under separates into three lanceolate segments. The corolla consists of a vexillum, or standard, which is roundish, entire, concave, obtuse, and double the length of the calyx; a carina, which is scythe-shaped, of the length of the alæ, compressed, and at the apex furnished on each side with a short spur. The filaments are ten, nine of which are united at the base, the four alternate ones being longer, and supporting incumbent anthers; in the shorter filaments the latter are placed vertically. The germen is oblong, villous, and supports a slender style, about the length of the filaments, terminated by a small orbicular stigma. The fruit is a coriaceous pod, about four inches long, compressed, curved like the letter S, thickly set with bristly, short, reddish, prurient hairs; and containing four, five, or six oval seeds, of a brown colour.

MEDICAL PROPERTIES AND USES.—The pods of the *Dolichos pruriens* are brought from the West Indies. They are densely covered externally with short hairs, which penetrate the skin when touched, and cause a very troublesome itching. Advantage has been taken of this irritating quality to expel worms from the human intestines; for this purpose they have been long advantageously employed in the West Indies, especially for the removal of the round worm, *lumbricus teres*, L. One of the earliest accounts, published in this country, of the vermifuge powers of the hair of the pods of the cow-hage, is that by Mr. Kerr, in the Edinburgh Medical Commentaries. Sir Hans Sloane notices the diuretic qualities of the roots and pods of this plant, but takes no notice of its vermifuge effects. Dr. Patrick Brown, however, informs us, that in the Windward Islands, a syrup is made of the pods, which is a very effectual remedy against worms. But the most complete account, showing the efficacy of this medicine as an anthelmintic, is that of Dr. Bancroft, in 1759, who resided many years in Guiana, a Dutch settlement in South America, where the inhabitants, particularly the slaves are much afflicted with intestinal worms. After stating the frequency of worms in that country, and endeavouring to account for it, he adds, that “from whatever cause these worms originate, their number is so great, and their power so prolific, that the usual remedies are insufficient for their destruction; for which reason the planters in general have recourse to cow-hage for that purpose. The part used is the setaceous hairy substance, growing on the outside of the pod, which is scraped off, and mixed with the common syrup, or molasses, to the consistence of a thin electuary, of which a tea-spoonful

to a child two or three years old, and double the quantity to an adult, is given in the morning fasting, and repeated the two succeeding mornings; after which, a dose of rhubarb is usually prescribed. This is the empirical practice of the planters, who usually, once in three or four months, exhibit the cow-hage in this manner to their slaves in general, but especially to all the children, without distinction; and in this manner I have seen it given to hundreds, from one year and upwards, with the most happy success. But though these were indisputable proofs of its efficacy, I was far from being convinced of its safety. I observed, that the substance given consisted of an assemblage of spiculæ, exquisitely fine, and so acutely pointed, that when applied to the skin they excited an intolerable itching, and even inflammation; from whence I apprehended dangerous consequences from their contact with the coats of the stomach and intestines. Indeed, when mixed into an electuary, in the manner in which they are given, their elasticity is so impaired, that they do not produce the same sensible irritation; but yet I could conceive no other quality on which their efficacy depended, especially after I had prepared both a tincture and decoction from cow-hage; and yet can, with the greatest truth, declare, that, though prejudiced to its disadvantage, I was never able, either by my own observations, or diligent inquiry, to discover a single instance of any ill consequence resulting from its use, which has been so extensive, that several thousands must have taken it; and as no ill effects have been observed, I think, not only its efficacy, but safety, are sufficiently evinced to entitle it to general use, especially when we reflect on the uncertainty, and even danger, which attends on vermifuges.”* Whether this remedy is equally deleterious to the *ascarides*, he says, he cannot speak, as he has not seen it tried against them. For this last purpose, Dr. Mason Good suggests its employment in the form of mucilaginous injections. It was a favourite remedy with Dr. Macbride, who, in his introduction to the “Theory and Practice of Physic,” has strongly recommended it. It is a fact well-known to entomologists, that the hairs of the caterpillars of several moths occasion a most violent itching, particularly those of the procession moth (*Lasiocampa processionæ*), of which Reaumer has given so interesting an account. Hence it has been supposed, that the hair of the caterpillars here alluded to, might probably be found equally efficacious as an anthelmintic.† A decoction of the pods of this plant is said to be powerfully diuretic, and a vinous infusion is occasionally administered in dropsy. A strong tea, made with the roots, and sweetened with honey, has been recommended by the native doctors of India as a remedy for cholera.‡

By the “Mirror of the Months,” the appearance of natural scenery in July is brought before us. “The corn-fields are all redundant with waving gold—gold of all hues—from the light yellow of the oats, (those which still remain uncut,) to the deep sunburnt glow of the red wheat. But the wide rich sweeps of these fields are now broken in upon, here and there, by patches of the parched and withered looking bean crops; by occasional bits of newly ploughed land, where the rye lately stood; by the now darkening turnips—dark, except where they are being fed off by sheep flocks? and lastly by the still bright-green meadows, now studded everywhere with grazing cattle, the second crops of grass being already gathered in.

“The woods, as well as the single timber trees that occasionally start up with such fine effect from out of the hedge-rows, or in the midst of meadows and corn-fields, we shall now find sprinkled with what at first looks gleams of scattered sunshine lying among the leaves, but what, on examination, we shall find to be the new foliage that has been put forth since midsummer, and which yet retains all the brilliant green of the spring. The effect of this new green, lying in sweeps and patches upon the old, though little observed in general, is one of the most beautiful and characteristic appearance of this season. In many cases, when the sight of it is caught near at hand, on the sides of thick plantations, the effect of it is perfectly deceptive, and you wonder for a moment how it is, that while the sun is shining so brightly *every where*, it should shine so much *more* brightly on those particular spots.”

* *Essay on the Natural History of Guiana*, p. 390.

† Kirby and Spence's *Introduction to Entomology* • 1. 5th ed. p. 180.

‡ Burnett's *Outlines of Botany*.



Protea cynaroides.

PROTEA CYNAROIDES.—ARTICHOKE-LIKE FLOWERED PROTEA.

CLASS VI. TETRANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, PROTEACÆ.

CHARACTER OF THE GENUS, PROTEA. Involucrum imbricated, many-leaved, persistent, surrounding the receptacle, which is many-flowered, and beset with persistent shortened paleæ. Perigone divisible into two portions, unequal, the three segments of the broader lip cohering. Stamens four, inserted into the concave tops of the segments of the perigone. Scales four, hypogynous. Ovary one-celled, containing one ovule. Style subulate; stigma narrower, cylindrical. Nut one-seeded, clothed throughout with beard-like hairs, and terminated by the persistent style, resembling a tail.

DESCRIPTION OF THE SPECIES PROTEA CYNAROIDES. A low shrub, the stem being rarely two feet, erect, simple, wrinkled. Leaves alternate, petiolate, petioles roundish, wrinkled, devoid of hairs, about an inch in length, the lamina smooth, spreading, entire, roundish, or obscurely mucronate, shining. Flower a terminal capitula, very large, of an ovate form, the numerous scales of the involucre progressively becoming larger from the base to the summit, oblong, acute, all of them covered with a silky down, those near the base brownish, the upper ones of a delicate pink, deeper on the inner side especially at the margins. Receptacle flattish. Perigon with a long tube, separable at the top into two lips, unequal, entirely clothed with a white down. Stamens four, inserted into the concave tips of the perigone, filaments short, anthers linear, or tapering, yellow. Ovary oblong, hairy, style one, awl-shaped, stigma slender, projecting beyond the perigon, of a bright red colour. Nut hairy, crowned by the persistent style.

POPULAR AND GEOGRAPHICAL NOTICE. This most magnificent species, even of the superb genus *Protea*, is a native of the Cape of Good Hope, growing on the sides and summits of mountains. It is, indeed, a wonderful thing to see a flower of its size, nearly as large as a child's head borne on so diminutive a stem, for it is sometimes scarcely one foot in height. *Protea grandiflora* which comes nearest this in the size of the flower, has a tall branched stem. *Protea pulchra* and *Protea speciosa*, have likewise large heads of flowers, yet far inferior to the present subject, the dimensions of which cannot be estimated from the plate, as the figure is reduced to at least half the natural size. A question may be asked, what purpose does this extraordinary magnificence in the flower serve? It is at present impossible to answer as no direct use is made of any part of the numerous species of *Protea*, except for firewood; yet the flowers of *Protea mellifera* contain much sweet juice, which would be acceptable to the bees if they grew in the open air. Common as Proteaceous plants are in Australia, not one species of the genus *Protea* has been found there; indeed, they are strictly confined to the Cape of Good Hope, save one—*Protea abyssinica*, mentioned in Bruce's Travels, quarto edition, vol. V, appendix, p. 52, with a plate.

INTRODUCTION; WHERE GROWN; CULTURE. This plant was introduced into Britain, in 1792, by Messrs. Lee and Kennedy, Hammersmith nursery. It is a hardy greenhouse plant. "The best soil is light turfy loam, mixed with rather more than one third of fine sand; the pots must be well-drained with broken potsherds. Care must be taken not to let them droop for want of water, as the young roots are of a very fleshy substance, and soon suffer by too much drought, as well as by too much wet, so that they seldom recover, if suffered to flag too much. They also like to be placed where they may have a free circulation of air, as they cannot bear to be crowded, like some more rigid-growing plants. Ripened cuttings, taken off at a joint, and pared quite smooth, will strike root, if planted thinly in pots of sand placed under a hand-glass, but not plunged: the glasses must be often taken off, to give them air."*

Professor Burnett, in his introductory Lecture delivered in Chelsea Garden, says "Beings so curiously and wonderfully made as plants—being of such surpassing beauty and variety in their external forms, and demonstrative of such astounding skill in their internal mechanism, cannot but have some important functions to perform; and the investigation of them is the province of vegetable physiology. The functions of plants, I need scarcely say are most curious and important, not only with reference to their own well-being, but in an equal degree to both animals and men. Their influence upon the atmosphere and upon the soil are among the most extensive and important of their functions. The renovation of the air by plants, when rendered irrespirable by breathing or combustion, although at one time questioned, is a fact now indisputably established, and their influence on its humidity, and on the salubrity of the soil, is much greater than is usually conceived. That swampy aguish districts have been drained and rendered salubrious by the judicious planting of trees, and that the humidity and temperature of various countries, such especially as our

* The Botanist.

own, and other parts of Europe, have been varied, and even the quantity of rain that falls, been lessened by the felling of woods and clearing extensive tracts of forest land, are truths too well known to be more than just adverted to. The influence exerted by plants in the conversion of inorganic into organic matter, is likewise another most important function, and one exclusively their own, for it is a power that animals do not possess; while the metamorphoses they effect in refuse matter, changing every sort of filth and ordure which is supplied to them in the form of manure, into substances fit for food or raiment, are no less strange than they are common. We are astonished at the chemist, and extol his skill for converting, by an expensive process, linen into sugar, wood into a sort of flour, starch into gum, and so forth—and rightly do we give way to wonder; but conversions similar, though much more perfect and extensive, are being wrought by every plant, even by the humblest weed that grows. They are constantly engaged in the manufacture, if we may so express ourselves, of flour, sugar, oil, resin, flax, cotton, and all the other numerous vegetable substances which are so conducive to our comfort, nay, so essential to our existence, from earth, air, and water—presenting us not only with new organic matter, derived by their agency from the mineral kingdom, but also renovating that which, having been fed on or otherwise used and spoiled by men and animals, they cast, with loathing on the dunghill, and for the most part fail to recognise when returned to them as corn, and oil, as culinary vegetables, as delicious fruit, and as fragrant and beauteous flowers. The scientific culture of plants is founded on a knowledge of their structure and their functions, or it is a branch of vegetable physiology; and vast have been the improvements in both horticulture and agriculture since empirical practise has in some measure been superseded by scientific principles. The system of assolements, or the rotation of crops, by which the produce of our land has been quadrupled and the acclimation of plants with their hybridizations, by which the fruits and flowers of more southern regions are reconciled to our climate, are a few among the many examples which might be given of the benefits conferred by this science upon some of the most useful arts. The increase of food, and the fact of the more choice vegetables becoming cheap and common, cannot fail to be observed by every one. Each year our markets and shops are supplied more abundantly and with more choice vegetables. Sea kale, for example, which a few years since was rare and costly, is now cheap and common. Coleworts, cauliflowers, and the various kinds of brocoli, are not only improved, but have become more plentiful and cheap; while the potato, second only to corn in its importance, if not altogether as an esculent vegetable, the offspring of science, has been so much improved, varied, and multiplied by human skill and industry, and so much increased in value, as to be more indebted to its foster parents in Europe, than to the American savages by whom it was originally discovered. But here inexorable time cuts short the thread of our discourse.

If plants in a state of health are so essential to our existence, and conducive so much to our comfort and our pleasure, it would surely be ungrateful in us to neglect them when diseased. Vegetable pathology forms, then, another subordinate branch of our science; and although the maladies of plants have not hitherto been studied so much and so successfully as those of men and animals, still we know enough of them to be able to perceive that they suffer from the attacks of various diseases, some of which we are enabled to relieve, and others which are incurable in the present state of our knowledge. Plants, perhaps, suffer more from invagination and the attacks of insects than from any other means; yet they are subject to other diseases, both of sporadic and epidemic kind. Some of these even bear a similitude to animal disorders, and have therefore, received similar names, of which Wildenow furnishes a catalogue. Thus, plants are affected with atrophy, tabes or consumption, anasarca or dropsy, hæmorrhage, lepra, verrucæ, or warts, chlorosis, icterus, ulcerations, common gangrene, and necrosis, or dry gangrene, besides various kinds of deformities, wounds, mutilations, &c. &c. They are likewise subject, especially the cacti, to a peculiar kind of sudden death, called by the French “la mort,” by which, when affected, a branch or even a whole plant is as rapidly destroyed as the use of a limb is lost, or death produced in animals by apoplexy.

The diseases of plants are often, although injurious to them, beneficial to man, while at other times their unhealthy conditions so far deprave and change the quality of their ordinary productions, as to render those which are usually wholesome and nutritious, either worthless, baneful, or even poisonous. The production of agallocum and the various kinds of galls and gums, are instances of vegetable disorders being serviceable to man, while the diseases of corn, such as the smut, canker, rust, &c., and especially the ergot, are familiar examples of the fearful havoc they make in our crops, the former rendering a harvest worthless, and the other converting our sustaining corn to poison. It must, however, be recollected that the ergot is when properly administered, a most valuable medicine, and also that these apparently grievous evils are such only on a partial view; they are injuries only when particular instances are selected and isolated, for it is on all hands confessed that in the general economy of nature they are highly beneficial, as forming a part of the system of checks and counterchecks by which the balance is corrected when the strong overpowers and would exterminate the weak, and preserve that quality which could not be otherwise maintained. To modify their influence, and protect ourselves from the injurious prevalence, is the duty of science, and the more the study of vegetable pathology is pursued, the greater will be the power we shall obtain of turning even these apparently malevolent incidents to our advantage.”



Daphne . Mezereum .

DAPHNE MEZEREUM.—COMMON MEZEREON, OR SPURGE-OLIVE.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, THYMELÆÆ.—THE MEZEREUM TRIBE.

Fig. (a) represents the calyx spread open, to show the insertion of the stamens; (b) section of the pistil, showing the solitary pendulous ovule; (c) fruit; (d) section of the fruit, to show the solitary seed; (e) section of the seed; (f) the embryo.

MEZEREON is a low shrub, which occurs wild in some parts of England, and produces its flowers in March. It is first mentioned as a native of our island, by Miller, who found it plentifully near Andover, in Hampshire. Since that it has been observed in several other places, as at Laxfield, in Suffolk; in Needwood Forest, Staffordshire; in the beech-woods in Buckinghamshire; at Eastham and Stanford, Worcestershire; near Appleton, Berks; and in Wich-wood Forest, Oxfordshire.

It has a strong root, which gives off a number of small slender fibres covered with a smooth olive-coloured bark. The stem is bushy, with nearly upright alternate branches, covered with a smooth grey bark, and seldom growing above four or five feet high. The leaves are deciduous, lanceolate, scattered, smooth, stalked about two inches long, and half an inch broad, appearing after the flowers, and accompanied by flower-buds for the next season. The flowers are disposed in clusters, about three together, on the naked branches, with several smooth, ovate bractæas underneath; they are of a pale rose colour, fragrant, sessile, monosepalous, tubular, with the lip divided into four deep ovate, spreading segments. The calyx, which constitutes what is usually denominated the flower, resembles a *corolla* in texture, and contains the stamens. The filaments are eight, alternately shorter, inserted into the tube, and supporting roundish oblong anthers. The germen is ovate, superior, bearing a flattish, entire stigma, on a very short style. The fruit is a pulpy scarlet berry, containing a single seed, and is the favourite food of some species of finch. The seed is pendulous, and exalbuminous. The embryo straight, with a superior radicle. The cotyledons plano-convex; and the plumula small. Of this species of Mezereon there is a variety with white flowers, and yellow or orange-coloured berries.

QUALITIES.—The bark of the root, which is the part used in medicine, is united to the ligneous fibre by a woolly substance, which is the inner part of the liber. The recent bark is very acrid, and, when chewed, powerfully excites the salivary glands, and creates burning sensations in the mouth, which last for a considerable time. M. Vauquelin has discovered a new vegetable principle in the *DAPHNE Alpina*, which he calls *Daphnine*; it is probably present in most of the other species.

POISONOUS EFFECTS.—Several species of *Daphne* are poisonous, and the berries of this plant prove so to man, dogs, wolves, and foxes. Linnaeus reports, that a young lady labouring under intermittent fever, died from hæmoptysis, in consequence of having taken twelve berries of the *Daphne Mezereum*, and Vicat states, that an hydropic patient having taken the wood of Mezereon, was suddenly attacked with diarrhoea which was continued, and accompanied with insupportable pains. He had besides, for six weeks, vomitings which returned every day with extreme violence; although during the whole time, proper remedies were employed in order to quiet them.

M. Blatin also narrates the case of a person who took a decoction of the root of Mezereon, instead of marsh-mallow. It occasioned violent pains in the stomach and intestines, accompanied by strong burning sensations in the skin, restlessness, loss of appetite, intense fever, and irregular actions of the tendons. These symptoms were relieved by drinking copiously of a sweetened decoction of marsh-mallow.

MEDICAL PROPERTIES AND USES.—It is very generally allowed that Mezereon is a stimulating diaphoretic, useful in chronic rheumatism; but Dr. Donald Monro, Dr. Russel, Dr. Fothergill, and several other eminent men, have described it as capable of curing difficult ulcers, and severe affections of the skin.

OFF. PREP.—Decoctum Sarsaparillæ Comp. *L.*

Decoctum Daphne Mezerei. *E.*

Mr. Burnett, in his Inaugural Address at the Medico-Botanical Society, observes:—

“As long as the human race have been subject to disease, as long as pain has been an evil, so long must means of alleviation have been sought, and so long must medicines have been prescribed and used. Rude, indeed, were the early essays of our art, and long must they have continued rude: the morning twilight of physic has been for ages dawning into perfect day; comparatively, it is not long since men, ignorant alike of the indications to be observed, and of the instruments by which those indications might be fulfilled, prescribed scarlet clothes for fever, because they both were red, and saffron for jaundice on account of its yellow hue.

Much lately has been done in the investigation of diseases, their causes, their symptoms, and their effects; pathological anatomy has revealed many of the changes which various structures undergo, some of which

morbid conditions impair the energies, and others are incompatible with the duration of life. But what avails it that the physician can trace by symptoms the successive stages of disorganization, as they proceed in structures concealed from view? what avails it that the surgeon can proclaim the appearance of such morbid alterations long before dissection unfolds them to the light? what avails it that both can foretell the impairment or destruction of vital parts, without they can at the same time learn to check the ravages of disease, and either to alleviate the sufferings of the patient or to afford him a perfect cure? Without such an application of this art, the means of obtaining it would to many be repulsive, and the science itself not a blessing, but a bane; as the foreknowledge of ills that could not be relieved would but aggravate the misery man is called on to endure. But such is not the opprobrium of our useful, and hence noble arts; for the theory of physic is founded on experience, and the benefits of its practice who can venture to deny! As sciences medicine and surgery find few their equals; and as arts they are excelled by none.

A circumstance which still shrouds medicine in mystery, must have been formerly much more perplexing than we find it now. Even, however, in the present day, it frequently involves the principles of our practice in obscurity; and hence some persons, ignorant of how many cases there are in which it approaches demonstration, have not scrupled to call physic a conjectural science; to define its object to be the calculation of chances, and its decision the balance of probabilities. I, of course, allude to the acknowledged difficulty of determining how far a cure should be attributed to the renovating powers of life, and how far to the remedial agents which art employs: for some diseases, and especially in some constitutions, will disappear not only without, but even in spite of the physician; whilst others, in other persons, or even in the same person at other times, not the most consummate skill can cure. Of this, the records of legitimate practice would afford us abundant illustrations; but the empirical artifices of the present day form still more familiar examples: to these I shall not particularly allude: some will *long* be notorious beacons.

From these sources of error, many useless, many nauseous, and not a few noxious, agents have, from time to time been introduced, several have enjoyed an ill-earned fame; while some really efficient medicines have as undeservedly fallen into disrepute. Hence, likewise can we account for many of those superstitious rites, anciently so mixed up with medicine as to have been esteemed an essential part thereof. Few persons will take the trouble of distinguishing the *post* from the *propter*; and, even to those who would, the power is oft-times wanting. A mind, patient in observation, and well disciplined to distinguish truth from error, does not commonly coexist with that instinct (shall I call it almost blind instinct,) for generalization, by which theories are planned, and systems raised. Allow an example to illustrate this abstract proposition.

Achilles, writes the poet, escaped unhurt though long exposed to all a warrior's danger, (and so did others of the Grecian force, and so do many others in every hostile meeting;) Achilles at last was slain by an arrow which transfixed his heel, (and so have many others fallen by wounds in some especial parts, whether in the head, the hand, the heel, for weapons to each victim are not omnipresent;) but Achilles had been bathed by Thetis, (and so by most parents have their sons been washed;) yet it is fabled that the heel by which his mother held him was the only part unwetted; that heel it is said was pierced: and hence arose the fame of the antivulneriferous waters of the Styx. "*Post ergo propter balneum salus.*"

Again, in times of general sickness, the Romans, with solemnity elected a Dictator, for the especial purpose (and that alone) of driving a nail into the temple of Jupiter, and when afterwards the pestilence decreased, *post ergo propter malleum salus.*

Just as, at the present time, in countries where the plague prevails, an angel is believed to cast a drop of water on the earth, on the festival of St. John, after which day the plague is stayed, and to which the restoration of salubrity is attributed, rather than to the actual cause, viz. the great increase of heat that then ensues, and which is incompatible with its duration.

Again, honey was employed in ancient times, as still it is, as a useful application to relieve aphthous eruptions in the mouth and fauces; but then the relief obtained was attributed not immediately to the mean employed, but immediately to an extraneous coincidence foreign to its nature, and only therewith fortuitously connected; i. e. the cure was ascribed by Soranus, who records a case in point, not to the honey, as honey, but to the accidental circumstance of *that* honey, which wrought the cure he mentions, having been procured from bees that had hived near Hippocrates' tomb.

Thus when men prescribed medicines, of the properties of which there was little known, for diseases, of the pathology of which they knew much less, it cannot be surprising that, although sometimes, *perchance*, they might assist recovery, more frequently they would do no good; and not uncommonly they would do much harm. Still, such was the perverseness of superstition, such the obtuseness of her votaries, that, whenever recovery ensued after the administration of any remedial means, were it either independent, or even in spite, of its effects, the cure was immediately attributed thereto; and when, as oftentimes occurred in cases of real disease, (although many slight or supposititious ailments would occasionally disappear during the exhibition,) it failed to cure or to relieve, some trifling variation in attendant circumstances, such as the mode or hour of administration or collection, or some other trifling irregularity, not only foreign but impertinent to the question, was referred to as the source of failure: and hence arose many of those superstitious rites which figure so strangely in the medical records of antiquity."



Epidendrum Schomburgkii.

EPIDENDRUM SCHOMBURGKII.—SCHOMBURGK'S EPIDENDRUM.

CLASS XX. GYNANDRIA.—ORDER I. MONANDRIA.

NATURAL ORDER, ORCHIDÆ.—THE ORCHIS TRIBE.

CHARACTER OF THE GENUS, EPIDENDRUM. PERIGON spreading, the outer divisions nearly equal, the inner ones equal to them, or narrower, seldom broader. LABELLUM with the claw connate with the column, either along its whole length or in part; the limb entire or divided; the disk usually callous, ribbed, or tuberculate, sometimes extending into a spur adhering to the ovary. COLUMN elongated; the receptacle of the anther bordered, usually fringed. ANTHER fleshy, two or four-celled. POLLEN MASSES four, with as many bent back caudicles.

DESCRIPTION OF THE SPECIES, EPIDENDRUM SCHOMBURGKII. EPIPHYTE growing to the height of two or three feet, without pseudo-bulbs. STEM leafy in its lower half, having in the upper part none but closely appressed sheathing squamæ. LEAVES sheathing at the base, distichous, spreading, oblong, blunt, thick and fleshy, spotted with dark pink in a wild state, according to Schomburgk, generally two or three inches long. FLOWERS in a terminal raceme, which from the closeness of the pedicels to each other, takes the form of a loose head. PEDICELS simple, one-flowered, each at the axil of a small bract. Ovary long, curved. Sepals and Petals all similar and equal, spreading, lanceolate, pointed, narrowed at the base, above half an inch, or nearly three-quarters in length, of a rich scarlet. Labellum borne on a claw which is connate with the column, into a club-shaped scarlet tube with a yellow orifice, rather shorter than the petals; the limbs broadly orbicular, more or less deeply divided into three broad obovate, cuneate lobes, irregularly fringed on the margin; at the base are two projecting calli, and between them a projecting longitudinal line.

POPULAR AND 'GEOGRAPHICAL NOTICE. The genus *Epidendrum* which, in the days of Linnæus and his immediate successors, was the common receptacle for nearly all tropical Orchidaceous Epiphytes known at that time, was first reduced to its natural limits by Brown, and, as adopted by Lindley, it remains at once a well-defined and a very numerous genus; probably the most numerous in America, to which hemisphere it is strictly confined. Every collection from the hotter parts of that country furnishes some new species, and the seventy-one enumerated by Lindley, in 1831, are, perhaps, now nearly doubled. The one here figured, one of the finest of the genus, chiefly from the richness of its colour, was discovered at the foot of the mountain Attarypon, near the Rupunoony, in British Guiana, by M. Schomburgk, who in a letter to Dr. Lindley, quoted in the Botanical Register, states that he found it growing, in company with *Coryanthes* on a tree on the banks of the river, exposed to full light. The description made in the same work, taken from dried specimens and from a drawing of M. Schomburgk's, and the anticipations as to its beauty, have been fully confirmed now that the plant has flowered in our stoves.*

AUTUMN, and particularly the *Evening of Autumn*, has been a chosen season for study and reflection with some of the most exalted spirits of which our country can boast. Milton we know to have been so partial to this period of the year, and so impressed with a conviction of its friendliness to poetic inspiration, as to leave it on record that he felt the promptings of his genius most effectual and satisfactory to himself about the *Autumnal Equinox*.

To Thomson, who partook of much of the sublimity, and possessed an ample share of the pensive enthusiasm of Milton, we are indebted for an express tribute to Autumn, as the season best suited to philosophic thought and poetic composition. He is describing the retired and contemplative man, who watches with discriminating admiration the phenomena of the revolving year, and who from all he sees and feels derives a source of the purest and most permanent enjoyment.

He, when young Spring protrudes the bursting gems,
Marks the first bud, and sucks the healthful gale
Into his freshened soul; her genial hours
He full enjoys; and not a beauty blows
And not an opening blossom breathes in vain.
In summer he, beneath the living shade,
Such as o'er frigid Temple wont to wave
Or Hemus cool, reads what the Muse, of these
Perhaps, has in immortal numbers sung:
Or what she dictates writes: and, oft an eye
Shot round, rejoices in the vigorous year.
When Autumn's yellow lustre gilds the world,
And tempts the sickled swain into the field,
Seiz'd by the general joy, his heart distends
With gentle throes, and through the tepid gleams
Deep-musing, then he best exerts his song.

There is in the grey and sober tinting of an *Evening in Autumn*, in the many-coloured hues of the trembling foliage, in the fitful sighing of the breeze, in the mournful call of the partridge, in the soft low piping of the red-breast, and above all, in the sweetly-plaintive warbling of the thrush, the blackbird, and the woodlark, a union of sight and sound which can scarcely fail to touch the breast with a corresponding sense of pensive pleasure. More especially is this felt to be the case, if, while we are contemplating such a scene, the setting-sun, hitherto shrouded in the gathering gloom, should gleam a farewell lustre on the fields; it is then, perhaps, that our emotions harmonize most completely with external nature; it is then that, in the touching language of a contemporary poet, and in the same exquisite spirit of tender enthusiasm, we must wish to take our leave of the departing luminary:—

Farewell, farewell! to others give
The light thou tak'st from me:
Farewell, farewell! bid others live
To joy, or misery.

Say, breathes there one who at this hour
Beholds thy glories shine,
And owns thy strangely-thrilling power,
With feelings such as mine?

For I have view'd thee as a friend,
And lov'd, at morn or eve,
Thy golden progress to attend,
Thy first, last look receive.

Thou witness of my lonely dreams,
Inspirer of my shell,
Like Meinnon's, answering to thy beams,
Not yet—not yet farewell!

How soft, how tender a repose
O'er Nature sheds its balm,
Like sorrow, mellowing at the close,
To resignation calm!

While man's last murmur, hush'd to rest,
Steals gradual from the ear,
As the world's tumult from a breast
Where heav'n alone is dear.

O'er all my soul seems gently shed
A kindred soften'd light;
I think of hopes that long have fled,
And scarcely mourn their flight.

Once more farewell! Another day,
To all, or dark or glad,
Fleets with thy vanish'd orb away,
And am I pleas'd or sad?

I know not. All my soul to speak,
Vain words their aid deny;
But, oh, the smile is on my cheek,
The tear is in my eye!

It is this *tender melancholy*, an emotion originating from some of the finest feelings which do honor to the human heart, that has rendered the evening of the day and year so peculiarly a favourite with the lovers of nature and of nature's God. It is then we cease to commune with the world of man; we turn disgusted from its cares, its follies, and its crimes, to seek in solitude and contemplation, in the fields, and woods, and by the fall of waters, that peace and consolation, that wisdom, and that hope, without which our being here would be as the mockery of an idle dream, and our waking from it but one scene of inextinguishable regret. It is, in fact, through the vicissitude and decay of all around us, through the solemn and the dying aspect of this monitory season, that the voice of our Creator speaks in tones that cannot be misunderstood. They admonish us that we too are hastening to a temporary dissolution; that the spring and summer of our days have past, or are fleeing fast away; that the hour is come, or shall approach, when the blanched head, the enfeebled eye, and tottering step shall assimilate our state to that of the faded and the fallen leaf; when the pride and vigor of this earthly frame shall wither and be extinct, and the heart that throbb'd with joy or grief, with anger or with love, shall cease to beat for ever!—These are reflections which give birth to the noblest emotions that can animate the breast of man. We are dying mid a dying world, an idea which can scarcely be entertained without extinguishing in our minds every harsh and hurtful passion—without our feeling, indeed, for all that live around us, that holy sympathy, that kindling charity, from which the strifes and bickerings, the envy and the hatred, of a selfish world, must sink appalled away. They are reflections too, which, while they incline us to humility and philanthropy, to that kindness and commiseration which a mutual and a general fate have awakened in our bosoms, lead us, at the same time, and by the most delightful of channels, a love for all that lives, to put our trust in Him with whom "there is no variableness nor shadow of turning."*

* Dr. Drake's *Evenings in Autumn*.



Salix Russelliana.

SALIX RUSSELLIANA.—BEDFORD WILLOW.

CLASS XXII. DICEIA.—ORDER II. DIANDRIA.

NATURAL ORDER, SALICINÆ.—THE WILLOW TRIBE.

THIS species of Willow is a native of wet meadows, osier-holts, and hedges, throughout the midland and southern counties of England; flowering in April or May. It was long confounded with the *S. fragilis*, and was first made known for its valuable economical properties under the name of the Leicestershire, or Dishley Willow. The late Duke of Bedford brought it much into notice for its tall, handsome, rapid growth; and the bark was also found by Mr. Biggin, an able practical chemist, to contain more of the tannin principle than any other tree, except the oak. "Hence," says Sir James Smith, "this bark, taken for *S. fragilis*, has been found useful as a substitute for *Cinchona*, in agues; and if it has occasionally disappointed some medical practitioners, they probably chanced, in such cases, to give the real *fragilis*." Tanners have sometimes been, in like manner, deceived, and they will find it worth their while to observe the character of the tree, in future, before they purchase its bark. On the other hand, when the tree in question was first recommended for cultivation, by the name of the Leicestershire, or Dishley Willow, it was regarded with scorn, as "only the Crack Willow," a sort notoriously useless. This ignorance and prejudice are now removed, and *S. Russelliana* is found the most profitable for cultivation of any species of the genus, (of which sixty-four are indigenous to Britain,) for the value of its timber as well as bark, the rapidity of its growth, and the handsome aspect of the tree. A famous willow, planted by Dr. Johnson, at Lichfield, is the *Russelliana*; as I am assured by the Rev. Mr. Dickenson, who has mentioned it in his edition of Shaw's History of Staffordshire, p. 113, by the name of *fragilis*.

The Bedford Willow is a tall tree, more handsome than the *Salix fragilis*. The branches are long, straight, and slender, very tough, round, flexible, and covered with a very polished bark. The leaves are lanceolate, very smooth, tapering at the base, not rounded, says the learned author of the "English Flora," nor do they at any period approach to the broad, ovate form of the crack willow, with a stouter midrib; they are strongly, and rather coarsely, serrated throughout. The footstalks are smooth, channelled, glandular, either along their edges, or about their summit, where they occasionally bear two or more lanceolate leaflets. The stipules are half-ovate, toothed, or cut, and sometimes are altogether wanting. The female catkins are longer and more tapering than *fragilis*, and their common receptacle less downy. The calyx is oblong, either hairy or having a deciduous scale. The germen is lanceolate, tapering, smooth, on a smooth stalk; at whose base, on the inside, is a large, abrupt, solitary nectary. The style is equal in length to the deeply divided stigma. The germen protrudes beyond the scale, nearly half its own length.

DISTINCTIVE CHARACTERS.—The whole hue of *Salix Russelliana* is lighter and brighter than that of *fragilis* especially the leaves, which are more firm, narrower, tapering at the base; their serratures more coarse and irregular, and the midrib considerably stouter. The glands on the footstalk sometimes become leaflets. The germen is longer and more tapering, with a longer stalk and style. In *fragilis*, the germen is ovate, and scarcely, if at all, longer than the scale. *Salix Errhartiana*, or the Hexandrous German Willow, bears a considerable affinity to the present species, but its leaves are much smaller, more elliptic-lanceolate, with finer, closer serratures, and the scales of the catkins shorter and rounder. This valuable species may be distinguished even in winter, from the *fragilis*, when stripped of its leaves, "by its much more handsome and straight mode of growth, instead of the branches decussating each other, or being set on obliquely, in the very unsightly manner of that tree."

QUALITIES AND CHEMICAL PROPERTIES.—The bark of this species of willow agrees in its sensible

properties with the others, excepting that it has been found to contain a much larger proportion of tannin. It is on this account that it has been strongly recommended by Sir J. Smith, as preferable for medicinal purposes; to which opinion we cordially subscribe. Neither this, nor the bark yielded by the *S. fragilis* and *S. caprea*, have undergone as far as we know, any elaborate chemical analysis.

MEDICAL PROPERTIES AND USES.—Although the bark of the *Salix Russelliana*, is, on the authority of Sir J. E. Smith, best adapted for medicinal purposes, it was that of the *S. alba* which was first used by the Rev. E. Stone, of Chipping-Norton, whose paper in Vol. LIII. of the Philosophical Transactions introduced it to notice; and from which we make the following extract:—"I have continued to use it in two scruple doses, repeated every four hours between the fits, as a remedy for agues and intermitting disorders, for five years successively and successfully. It hath been given, I believe, to fifty persons, and never failed in the cure, except in a few autumnal and quartan agues with which the patients had been long and severely afflicted: these it reduced in a great degree, but did not completely take them off: the patient, at the usual time for the return of his fits, felt some smattering of his distemper, which the incessant repetition of these powders could not conquer; it seemed as if their power could reach thus far and no farther; and I did suppose that it would not have long continued to reach so far, and that the distemper would have soon returned with its pristine violence; but I did not stay to see the issue. I added one fifth part of Peruvian bark to it, and with this small auxiliary it totally routed its adversary."

The willow has not only been noticed, but employed in basket-work in this country from a very early period, and there is some probability that the Britons taught the art to the Romans—at least, from the mention of a basket brought to Rome by painted Britons, in Martial, we should be led to infer that baskets of British manufacture were esteemed in the capital of the world.

The timber of the willow is applicable to many purposes similar to those in which the poplar is employed, and in toughness it is far superior. The ancient Britons sometimes made their boats of basket-work of willow, and covered them with the skins of animals: they were remarkably light and buoyant.

The willow is used extensively in the manufacture of charcoal; and it has been found to be superior to most other woods in producing charcoal for gunpowder. A good deal depends, however, upon the manufacture. In the ordinary modes of making charcoal, by building the wood up in a pyramidal form, covering the pile with clay or earth, and leaving a few air-holes, which are closed as soon as the mass is well lighted, combustion is imperfectly formed. For charcoal to be used in the manufacture of gunpowder, the wood should be ignited in iron cylinders, so that every portion of vinegar and tar which it produces should be suffered to escape. In India, charcoal is manufactured by a particular caste, who dwell entirely in the woods, and have neither intermarriage nor intercourse with the Hindoo inhabitants of the open country. They bring down their loads of charcoal to particular spots, whence it is carried away by the latter people, who deposit rice, clothing, and iron tools, a payment settled by custom. The benevolent Bishop Heber wished to mitigate the condition of these unfortunate people, but he found that he could not break through the Hindoo prejudice against them. Evelyn, in his *Sylva*, fears that the progress of our iron manufacture would lead to the destruction of all our timber, in the preparation of charcoal for furnaces. He did not foresee that we should find a substitute, by charring pit-coal into coke.

Good charcoal is also made from Dog-wood (*Cornus sanguinea*), which is, however, a tree, or rather a shrub, very different from the willow in its appearance and habits. The Dog-wood is firm and compact; grows naturally in hedges upon chalky soils, and bears berries that have a purple juice, out of which a red colouring matter of considerable brightness may be extracted. It is very common in Kent and Sussex; and as there are many powder mills there, coppices of it are reared for supplying them with charcoal.

Old Fuller calls the willow "a sad tree, whereof such who have lost their love make their *mourning garlands*." The twigs hereof are physick to drive out the folly of children. This tree delighteth in moist places, and is triumphant in the Isle of Ely, where the roots strengthen their banks, and top affords fuel for their fire. It groweth incredibly fast, it being a by-word in this county, that the profit by willows will buy the owner a horse before that by other trees will pay for his saddle.

In the language of Flowers, the Willow is the emblem of *melancholy*.



Lathyrus temulentum.

LOLIUM TEMULENTUM.—BEARDED DARNEL.

CLASS III. TRIANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, GRAMINEÆ.—THE GRASS TRIBE.

FIG. (a) spikelet; (b) under glume; (c) floret; (d) germen, and styles.

THIS is one of the rarer British grasses. It has been generally regarded as not unfrequent in many parts of England. Dr. Boué, of Geneva, in his Inaugural Thesis, published at Edinburgh in 1817, enumerates it amongst the scarce plants of Scotland. Sir William Hooker, in his *Flora Scotica*, informs us, that it is occasionally found in the neighbourhood of Glasgow. It is an annual, growing spontaneously in corn-fields among wheat, barley, and flax; and flowering in July.

The culm or stalk is rough in the upper part, erect, cylindrical, striated, three or four feet high, and clothed at the joints, which are from three to five in number, with linear pointed leaves, a foot or more in length, rough on the upper surface, but smooth below, and of a pale green colour. The sheaths are roughish, striated, and crowned with a short blunt ligula, slightly notched at the edge. The inflorescence is an erect spike, frequently a foot or more in length. The spikelets are erect, sessile, disposed in two rows, alternately along the rachis or common receptacle, each containing many flowers. The single valve of the glume is the length of the spikelet, awl-shaped, and without any awn; the terminal flower of each spikelet, and frequently the lower ones are furnished with a minute elliptical inner valve. The glumelle consists of two unequal valves; the outer only half the length of the glume; it is edged with white, and puts forth below the tip a straight awn, twice its own length. The filaments are three; capillary, shorter than the glumelle, and supporting oblong anthers, cloven at each end. The germen is turbinate; styles two, very short; stigmas feathery along the upper side. The seeds are solitary, elliptical, convex on one side, compressed, and attached to the inner valve of the glumelle. In some specimens the awns are very short, or altogether wanting. This is the only species of the extensive natural order, Gramina, that is known to possess deleterious qualities. Is generally met with in corn-fields, especially amongst wheat, where to a bad farmer it proves a troublesome and noxious weed.

“Being an annual plant, (remarks Mr. Sinclair, in his *Hortus Gramineus Wobernenis*), it may be easily kept under, or totally extirpated, by the practice of the drill mode of husbandry.”

QUALITIES.—The seeds are inodorous, and have a slight bitterish, disagreeable taste. They are said to redden the blue colour of vegetables.

POISONOUS EFFECTS AND MORBID APPEARANCES.—Haller states, that this species of *Lolium* possesses intoxicating effects, as its trivial name *temulentum* implies; and whether baked into bread, or fermented into ale, it is attended by very disagreeable, and even fatal effects. It produces headache, vertigo, lethargy, drunkenness, difficulty of speech; and the tongue exhibits a very strong trembling: while Seeger remarks, that a trembling of the body is one of the most certain signs of poisoning by this plant. It also affects with blindness for several hours, and is thus commemorated by Ovid in his *Fasti*:

“Et careant loliis oculos vitiantibus acri
Nec sterilis culto surgat avena solo.”

And this property has given rise to the proverb, “He feeds on Darnel,” which refers to a dim-sighted person: thus Plautus, in the scene referred to above, where Palestro inquiring what Sceledrus meant by his living on darnel, receives this answer, *Quia lusciosos*, “because you are purblind.” By the Chinese laws (for this plant is found in China and Japan,) it is forbidden to be used in fermented liquors. According to Withering, dogs are particularly affected by darnel; geese, and horses, are killed by it; but a small quantity mixed with their food, is said to fatten chickens and hogs.

The subjoined cases, communicated to the Editors of the Medical and Physical Journal, by Mr. Marsh, Surgeon to the 2nd Wiltshire Militia, fully illustrate the symptoms produced by the *Lolium temulentum* in England; and it will be perceived, that the bread, of which it was composed, excited the more violent effects when eaten hot: a fact previously noticed by Linnæus.

“In the month of September, a sack of leased wheat; with an equal quantity of tarling wheat, (*i. e.* the refuse seeds which pass the sieve, abounding very much with darnel (*lolium*), which by the generality of people, where the plant is much known, is called *cheal*, were ground and dressed together, and in the evening about ten o'clock bread was made of a part of it. Of this bread JAMES EDMONDS, about thirty-

three years of age, and Robert his son, aged thirteen, ate the next morning about three o'clock; at five (two hours after) James became sick and giddy, felt pain and tightness in the calves of his legs, was confined at home the whole day, but on the following day was so far recovered as to be able to resume his work. Robert ate, during the day, about a pound and a half of this bread, and at night, on his return from his work, he ate more of the same; he felt giddy, and had pain of the head during the whole of the first day, with great pain and tightness of the legs, especially of the calves of the legs, extending to the ancles, attended with redness, swelling, and itching of the skin. James, eleven years old—John, three—and Elizabeth, four—all partook of this bread the following morning about nine o'clock. They soon became giddy, were sick, their legs became painful, felt excessively tight, where swelled, inflamed and itched much, and continued in that state eight or nine days, when the symptoms gradually disappeared, producing in one of them only (James) a small collection of a gelatinous fluid in the inside of the foot. But with Robert, who ate with his father at three o'clock in the morning, and also in the evening, the pain and inflammation continued to increase till it terminated in gangrene; sphacelus succeeded, and he was under the necessity of suffering amputation of both legs. Very little general fever accompanied this till the latter stage of the disease, which, it is presumed, was the effect of absorption. The remedies made use of in this case (and that too without any sensible advantage,) were, in the beginning, evacuants; in the latter state, camphor and bark, with the use of spirituous fomentations and antiseptic cataplasms. It should however be remarked, that this poor family lived at seven or eight miles from medical assistance, and therefore they were not attended till two or three days after their attack.

"In several cases which have since occurred, as soon as the legs became painful, attended with inflammation and swelling, scarifications were made of considerable length and depth, which, with evacuants in the very first stage, and afterwards large doses of camphor, with nitre and opium, occasionally, have been attended with success."

In the second volume of the "*Histoire de la Société Royale de Médecine à Paris*," it is likewise stated that a farmer, his wife, and servant, ate bread made with darnel and wheat. The two latter were attacked with sickness, and refused to partake of more. The farmer continued to use it the three following days, and died after suffering the most severe colicky pains. But the affection of the calves of the legs, as noticed by Mr. Marsh is not spoken of.

During the blockade of Genoa, in 1800, some speculators in grain, mixed darnel with wheat, in their supplies. And a family of five individuals having eaten of flour bought in the public market, were all of them soon after seized with dimness of sight; confusion of ideas; prostration of strength; trembling; restlessness; depression of spirits; and cold rigors, especially in the extremities. These were most severe; and continued longest in the maid servant, who had eaten the largest quantity.

Dr. Cordier, in a paper addressed to M. Orfila, describes the effects produced upon himself by the ingestion of bread made of the farina of the seed of *Lolium temulentum*. It was taken in the quantity of six drachms, without other food, early in the morning; and had a peculiar slightly disagreeable taste. Distraction of thought; indistinct vision; torpor, accompanied with general uneasiness, debility, and drowsiness succeeded by sickness speedily came on. Tremor of the limbs; part of the bread rejected; great depression; speech difficult; slept for a few minutes; rejected the remainder of the bread with much colourless mucus; slept again at intervals, taking only a little soup, without appetite, till evening, when weakness and inappetence only remained. Next day, convalescent; but yet a sense of uneasiness accompanied by eruptions of a peculiar taste, continuing on the following days, and still perceptible in bread containing some portion of darnel. Dr. Corder was prevented from ascertaining the state of the circulation, and respiration by the general disorder of the system. He concludes from it, that darnel should be ranked amongst the stupifying narcotic poisons; and that its action is especially exerted on the cerebral and nervous system. The position of many naturalists, respecting the similarity of properties possessed by plants of the same natural family, meets here with an exception.*

MEDICAL PROPERTIES AND USES.—It will hence appear that both ancient and modern writers fully agree as to the intoxicating qualities of darnel grass; and from its resemblance to barley, we fear that beer not unfrequently owes its powers to it; being credibly informed, by an eminent practical botanist, that two acres of ground in Battersea fields, were lately cultivated with it; and we know no other purpose to which it could be applied. As a medicine, it is not now employed; but was used internally by the ancients in cephalalgia, sciatica, gout, &c. and Aretæus administered it in pleurisy. According to Boerhaave, "it resists putrefaction, if applied externally; and from its cleansing quality, proves highly efficacious in disorders of the skin." Galen applied it to wounds mixed with vinegar; and Celsus recommended the meal of *Lolium* to be used in poultices. "*Gravioribus vero doloribus urgentibus, cataplasma imponi quoque conveniet, vel ex lolio, vel ex hordeo, cui pinguis fici tertia pars sit adjuncta.*"

* Vide Med. Repository, vol. xiii. p. 260.



Clitoria fulgens.

CLITORIA FULGENS.—BRIGHT-FLOWERED CLITORIA.

CLASS XVII. DIADELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

GENERIC CHARACTER.—*Calyx* furnished with two large bracts at the base, five-cleft. *Vexillum* large. *Stamens* diadelphous, inserted along with the petals, above the base of the calyx. *Style* rather dilated at the apex. *Legume* linear, compressed, straight two-valved, acuminate by the base of the style, one-celled, many-seeded. *Seeds* usually separated by cellular substance, axillary, pedicellate.

Section—*Centrosema*. *Calyx* campanulate, cleft into five beyond the middle. *Vexillum* furnished with a spur behind. *Bracteoles* striated lengthwise. *Leaves* pinnately trifoliate, having one pair of leaves and an odd one.

SPECIFIC CHARACTER.—*Plant* a twining evergreen sub-shrub. *Stem* round, clothed with numerous short depressed hairs. *Leaflets* ovate, pilose, with a fringed margin. *Inflorescence* racemose, on a stalk six inches long. *Vexillum* scarcely expanding.

SYNONYME.—*Centrosema coccinea*.—*Hort.*

The most fascinating feature of all houses devoted to the display of flowers is, in our mind, those elegant plants usually called creepers. Gently supported by the aid of pillars or of trellises, and hanging loosely about them, or depending in graceful festoons from the roof, they lend an air of ease and finish that contributes not a little to enhance the beauty of the general aspect, by divesting it of stiffness and formality.

The present species is an elegant addition to the number of these plants, and was obtained by Messrs. Veitch and Sons, of Exeter, who exhibited a specimen at the Horticultural fête at the Chiswick Gardens as a species of *Centrosema*, one of the divisions of the genus *Clitoria*. It was discovered by their collector, Mr. William Lobb, growing on rocks,—over which the graceful slender branches spread in all the wild luxuriance of nature,—on the Organ Mountains of Brazil, in the autumn of 1840; and seeds were received from him, at the Exeter Nursery, in the spring of 1841. These were sown immediately, and produced plants which flowered for the first time, though rather scantily, autumn 1843. The abundance, however, in which the blossom buds have been developed during the spring, justify us in considering it most likely to prove a very free-blooming plant.

The long, slender, and slightly hairy stems are well adorned with handsome foliage, having a smooth and bright green upper surface, and the lower side of a paler hue, covered with numerous very short soft hairs. The slightly depressed position of the leaves has a pretty appearance, especially when the stems are trained spirally round a basket, as they then fall over each other in a neat and loosely tiled manner. From the axils of the leaves, the flowers are produced in a clustered head, supported on a stiff and wiry peduncle five or six inches long, elevating them sufficiently above the foliage to display, without interruption, the bright and glowing scarlet blossoms.

It has, hitherto, been cultivated in a house intermediate betwixt the stove and greenhouse, but it may probably be found to succeed pretty well in the ordinary temperature of the greenhouse. It thrives well in a mixture of peat, loam, and sand, and when removed from a small pot to a large one, its natural situation amongst rocks would point out the propriety of intermingling with this compost a few pieces of porous broken pot or charcoal, to keep the soil open, and facilitate drainage. And, although it will need a reasonable abundance of water during the season of growth, it will be proper to limit the supply in winter, as moisture is then liable to injure it, especially with a low temperature.

Seeds have not yet been produced in this country, but it strikes root with tolerable freedom, from cuttings.*

Many of our readers, though fond of gardens will learn perhaps, for the first time, that trees are cheaper things than flowers; and that at the expense of not many shillings, they may plant a little shrubbery, or make a rural screen for their parlour or study windows, of woodbine, guelder-roses, bays, arbutus, ivy, virgin's bower, or even the poplar, horse-chesnut, birch, sycamore, and plane-tree of which the Greeks were so fond. A few roses also, planted in the earth, to flower about his walls or windows in monthly succession, are nothing in point of dearness to roses or other flowers purchased in pots. Some of the latter are nevertheless cheap and long-lived, and may be returned to the nursery-man at a small expense, to keep till they

* Paxton's Magazine of Botany.

flower again. But if the lover of nature has to choose between flowers or flowering shrubs and trees, the latter, in our opinion, are much preferable, inasmuch as while they include the former, they can give a more retired and verdant feeling to a place, and call to mind, even in their very nestling and closeness, something of the whispering and quiet amplitude of nature.

In the earlier ages of Europe, kings were crowned, councils were held, and justice dispensed beneath the shade of some noble trees. From the shadow of an oak was Christianity first proclaimed in these realms; in a more recent day of our dear and noble country, the willows of Pope and Johnson, the mulberry of Shakspeare, and that of Milton, have associated those great names with the love of trees and of planting. Many noble works of our illustrious countrymen it would be easy to mention, that have been written, and more than one of our most distinguished living authors, who delights to compose, amid the inspiring grace and freshness and purity of trees. John Evelyn spent a considerable portion of a valuable life in endeavouring to communicate his admiration of trees and forests; and, besides, immediately effecting a great national service, by turning the attention of government to the importance of planting, has left a fine monument of his taste and labour. Well might this venerable and enthusiastic apostle of woods exclaim: "Here then is the true Parnassus, Castalia and the Muses; and at every call in a grove of venerable oaks, methinks I hear the answer of a hundred old Druids, and the bards of our inspired ancestors. In a word, so charmed were poets with those natural shades, that they honoured temples with the names of groves, though they had not a tree about them. In walks and shades of trees poets have composed verses which have animated men to heroic and glorious actions. Here orators have made their panegyrics, historians their grave relations; and the profound philosophers have loved to pass their lives in repose and contemplation."

And what author, ancient or modern, has not expressed his sense of their beauty, by employing them as figures of whatever is rich, flourishing and pleasant? In spring when they are in the delicacy of their pride, in summer when they are shadowy and aromatic, in the last splendour of autumn, or when winter robs them of their foliage, but brings to light what summer has concealed, the under-work and tracery of their branches—in each and all, are trees and woods inspiring and delightful.

It is in this month, however, that woods may be pronounced most beautiful. Towards the end of it, what is called the *fading of the leaf*, but what might more fitly be termed the *kindling or tinting of the leaf*, presents a magnificent spectacle. Every species of tree, so beautifully varied in its general character—the silver-stemmed and pensile-branched birch, the tall smooth beech, the wide-spreading oak and chesnut, each develops its own florid hue of orange, red, brown, or yellow, which, mingling with the green or unchanged trees, or the darkness of the pine, presents a *tout ensemble* rich, glowing, and splendid. Yet fine as our woods at this season, far are they exceeded by the vast forests of America; the greater variety of trees, and the greater effect of climate, conspiring to render them in decay gorgeous and beautiful beyond description.

"The woods! oh solemn are the boundless woods
Of the great Western World in their decline."

Hemans.

And solemn too are our own. The dark and glossy acorns lie scattered in profusion on the ground, the richly coloured and veined horse-chestnuts glow in the midst of their rugged and spiny shells, which have burst open by their fall among the deep and well-defined circle of "broad palmy leaves," that seem to have been shed at once. The host of birds enjoy a plentiful feast of beech-nuts in the tree-tops; and the squirrels beneath them, ruddy as the fallen leaves amongst which they rustle, and full of life and archness, are a beautiful sight.

The great business of Nature, with respect to the vegetable creation, at this season, is *dissemination*. Plants, having gone through the successive stages of springing, flowering and seeding, have, at length, brought to maturity the rudiments of a future progeny, which are now to be committed to the fostering bosom of the earth. Seeds are scattered by the hand of Nature in various manners. The winds which at this time arise, disperse far and wide many seeds, which are curiously furnished with feathers, or wings, for this purpose. Hence, plants with such seeds are, of all others, the most universally to be met with; as dandelions, ragwort, thistles, &c. Other seeds, by means of hooks, lay hold of passing animals, and are thus carried to distant places; as the bur. Many are contained in berries, which are carried about by birds. The seeds of some trees, as the maple, sycamore, &c. exactly resemble the wings of dragon-flies, being placed in pairs. Thus carefully has Nature provided for the distribution and propagation of plants.

Trees generally loose their leaves in the following succession: walnut, mulberry, horse-chestnut, sycamore, lime, ash; then, after an interval, elm; then beech and oak; then apple and pear trees, sometimes not till the end of November; and lastly, pollard oaks and young beeches, which retain their withered leaves till pushed off by the new ones in spring.*

* Howitt's Book of the Seasons.



Arnica montana L.

ARNICA MONTANA.—MOUNTAIN ARNICA, OR LEOPARD'S-BANE.

CLASS XIX. SYNGENESIA.—ORDER II. POLYG. SUPERFLUA.

NATURAL ORDER, COMPOSITÆ DISCOIDEÆ.

FIG. (a) represents a floret.

THIS is a hardy perennial, a native of the northern parts of the continent of Europe and Siberia, delighting in most shady situations, and flowering in June and July. It is also found on the Pyrenees, and was cultivated by Philip Miller in 1759.

The root is blackish, woody, abrupt at the lower end, and furnished with many long slender fibres. The stem, which rises about a foot in height in our gardens, but not more than six inches in alpine situations, is simple, obscurely angular, striated, rough, hairy, and terminated by two or three upright peduncles, each bearing one flower, of a deep yellow colour, tinged with brown. The radical leaves are ovate, entire, ciliated, and obtuse; the cauline ones stand in opposite pairs, and are lance-shaped. The involucre is cylindrical, and composed of fifteen or sixteen rough hairy lanceolate scales, of a dingy green colour, and purple at the points. The florets of the disc are very numerous, tubular, with a five-lobed margin: those of the radius about fourteen, ligulate, striated, three-toothed, and hairy at the base. The fruit is oblong, blackish, hairy, and crowned with a straw-coloured down.

QUALITIES AND CHEMICAL PROPERTIES.—The leaves of the dried plant have a pleasant aromatic odour, and excite sneezing, while their taste is somewhat aromatic, bitter, and pungent. The root is bitter and acrid; the flowers have a fetid smell and a penetrating bitter taste; and according to an analysis by M M. Chevalier and Lassaigne, the following constituents were obtained.

A resin, having the odour of the flowers.
A bitter nauseous matter, resembling *cytisine*.
Gallic acid.
Yellow colouring matter.
Albumen.
Gum.

Muriate of potass.
Phosphate of ditto.
Trace of sulphur.
Carbonate of lime.
A trace of silex.

MEDICAL PROPERTIES AND USES.—In over doses the Arnica montana exerts peculiar effects on the animal economy. It induces great anxiety, particularly in the region of the stomach, followed by pinching pains, nausea, a flow of saliva, and sometimes sickness. If it reach to the intestines, it induces colic pains. These effects generally pass off soon, without leaving any derangement of the system, provided the dose be not too large. If it be, the brain and spinal marrow are peculiarly affected, twitchings and involuntary motions of the extremities generally preceding the other effects on the nervous system.

Dr. Collin of Vienna, endeavoured in the year 1773 to recall this plant from disuse by the publication of numerous cases of putrid fever, intermittents, palsies, tremors, and amaurosis, from which it would appear to be a very powerful and successful remedy.

Dr. Crichton states, that in the worst stages of typhus, treated by Stoll in the hospital of Vienna, it succeeded wonderfully well when the pulse was exceedingly weak, small, and quick, and when petechiæ had appeared; and even when the patients seemed exhausted by a colliquative diarrhæa, this remedy generally produced the happiest effects.

Dr. Collin says that he has cured thirty-six quotidian, forty-six tertian, and fifty-eight quartan agues with the extract of arnica, a drachm of which was given in the course of the day. Its success in these cases is confirmed by the testimony of Professor Sebald of Prague.

In Jutland it is a popular remedy for ague, and Dr. Manger states that he has experienced the best effects from an infusion of about half an ounce of the flowers, drank two hours before the access of the paroxysm. It has also been given in tremors, palsy, and amaurosis, with different degrees of success; and as it evidently possesses some power over the nervous system, it is deserving of the attention of British practitioners, although it may not be quite so potent a medicament, as by some persons it has been esteemed.

The whole plant is generally used in infusion or decoction, in the proportion of an ounce of it to a pint and a half of water, which quantity may be given in doses of a cupful in the course of twenty four hours.

Of the flowers, two or three drachms are generally sufficient; although an ounce has been taken without injury in the course of the day. The extract made from the whole plant is preferred by Dr. Crichton, who gives a drachm in the same time.

In addition to the physical effects which we have already adverted to, it is stated to be capable of indicating the place where any injury has taken place, from an external cause, by augmenting the pain in the part, or renewing it if it have ceased to exist. The root seldom produces such disagreeable symptoms as the flowers, but as these are considered auspicious signs, they must not, we are told, be heeded unless violent. A little of the extract of gentian prevents its untoward effects on the stomach and co-operates in its beneficial results; which are generally accompanied by an increase, but not velocity of pulse.

"All physicians,
And penny almanacks, allow the opening
Of veins this month."

The pointing out proper days for bleeding, taking physic, and other odd matters, was an important part of the task formerly assumed by almanack compilers, as appears by the last quotation and that from Hall's Satires. Neither is the belief quite extinct even now, there being many well-meaning persons who would not willingly adopt a remedy for a disease, without previously consulting that mystical column in the Almanack devoted to "knees, legs, ancles, feet, toes," &c; it being considered lucky, or unlucky, I forget which, to take medicine on the day when the particular part of the body affected is under the influence of the Sign. To facilitate the researches of the curious into these matters, Almanacks were formerly decorated with the figure of a man, and the several portions of his frame marked by the Sign which especially concerns them. I cannot say I recollect this desirable illustration "in my time" but I believe it has not been altogether discontinued within the memory of many persons somewhat more experienced. Mr. Forby in his East Anglian Vocabulary, gives the following anecdote in point.

"About the close of the last century, a medical practitioner of great practice, in Suffolk, sent an opening medicine to a patient, and desired him to take it immediately. On the following day he called at his house, and inquired how it had operated. The patient (a substantial farmer) said he had not taken it; and, upon the doctor's remonstrating against this disobedience, the sick man gravely answered, that he had looked into his Almanack, and, seeing the sign lay in 'Bowels,' he thought *that*, and the physic together, would be too much for him."

Our old dramatists abound with allusions to this "pictured shape." Not to multiply quotations unnecessarily, I shall notice but two. In Fletcher's "Chances," Antario, having been wounded, says of the surgeon,

"When I go to bed,
He rolls me up in lints, with lables at 'em,
That I am just the Man i' the Almanack."

And the Epilogue to Lee's "Gloriana," 1676, describing the severity of the weather when that Tragedy was produced, has this passage,

"The ladies too, neglecting every grace,
Mob'd up in night-clothes came, with face to face;
The towre upon the forehead all turn'd back,
And stuck with pins, like the Man i' th' Almanack."

The days of astrological prediction seem, however, to be nearly gone by; and even the compilation of Francis Moore, Physician, which the Address put forth by the Stationers' Company in 1830, avers to have "been for nearly two centuries the most popular of all the Almanacks published in England," is rapidly declining, I fear, from that "high and palmistation." To hasten its downfall, the "Stationers," in the Address just quoted, speaking of this and Partridge's make the following admission, which I commend more for its candour than its prudence.

"*Note.* These two Almanacks are the only ones published by the Stationers' Company which contain astrological predictions. These are still given from a persuasion that they delude nobody, and because many thousand readers are amused by tracing the coincidences which often occur between the prediction furnished by the astrological rule and the actual event."

Superstition, however, has still her votaries; for a new Almanack has made its appearance within these few years, resting its claim to support solely upon the ground of its astrological merits; and, having made some lucky hits, has, I understand, a large sale. I forget its precise title, and never had courage to examine its contents, being scared by the raw-head and bloody-bones with other fearful objects, which the superbly colored hieroglyphic presents to view.

I wish some one, skilled in this kind of lore, would inform the world when and where the original Francis Moore, Physician, flourished. Many men of less eminence, have had their biographers; and why should not some kind soul attempt to rescue poor Francis from "the gaping gulf of blank oblivion," as poor Kirke White styles it.*

* The Year Book.



Jasminum officinale?

JASMINUM OFFICINALE.—THE JASMINE OR JESSAMINE.

CLASS II. DIANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, JASMINEÆ.—THE JASMINE TRIBE.

ESSENTIAL CHARACTER.—*Calyx* divided or toothed, persistent. *Corolla* monopetalous, hypogynous, regular, hypocrateriform, with from 5 to 8 divisions, which lie laterally upon each other, being imbricated and twisted in aestivation. *Stamens* 2, arising from the corolla, enclosed within its tube. *Ovary* destitute of a hypogynous disk, 2-celled, with 1-seeded cells, the ovules in which are erect; *style* 1; *stigma* 2-lobed. *Fruit* either a double berry or a capsule separable in two. *Seeds* either with no albumen, or very little; *embryo* straight; *radicle* inferior.—*Shrubs*, having usually twining stems. *Leaves* opposite, mostly compound, ternate or pinnate, with an odd one; sometimes simple, the petiole almost always having an articulation. *Flowers* opposite, in corymbs. *R. Br.*

The name of this plant is derived from the Greek, and signifies an agreeable odour. Nearly all the European languages have the same name for it. In *French*, it is *Jasmin*: in *Italian*, *Gelsomino*: *Spanish*, *Jasmin*: *Dutch* *Jasmy*n, &c. &c. In English it is sometimes familiarly called *Jessamy*, *Jessima*, and *Gesse*.

There is an elegance in the Jasmine which added to its fragrance renders it an object of universal admiration.

It grows naturally at Malabar, and in several parts of India, yet has been long inured to our climate, so as to thrive and flower extremely well, but never produces any fruit in England. It is easily propagated by laying down the branches, which will take root in one year, and may then be cut from the old plant, and planted where they are designed to remain: it may also be propagated by cuttings, which should be planted early in the autumn, and guarded against the effects of severe frosts.

When these plants are removed, they should be planted either against some wall, pale, or other fence, where the flexible branches may be supported. These plants should be permitted to grow rude in the summer otherwise there will be no flowers; but after the summer is past, the luxuriant shoots should be pruned off, and the others must be nailed to the support.

When first introduced into France by some Spanish navigators, about 1560, it was greatly admired for the lightness of its branches and the delicate lustre of its star-like flowers. It was deemed necessary to place a plant so elegant and apparently tender, in the hot-house. It was then tried in the orangery, where it grew marvellously well; and at length it was exposed in the open ground, where now it grows as freely as in its native soil, braving the most rigorous winters without requiring any care or attention.

The flexible branches of this odoriferous shrub may be trained according to our pleasure. It will climb our palisades, and weave itself around our trellised arches, and cover the dead wall with an evergreen tapestry, and run gaily along our terraces and our walks. It is also obedient to the scissors of the gardener, who forms it into bushy shrubs or grotesque figures; and, in every form, it lavishes upon us an abundant harvest of flowers, which perfume, refresh, and purify the air in our groves.

Then how serene! when in your favourite room,
Gales from your jessamines soothe the evening gloom.

CRABBE.

These charming flowers offer a rich cup to the gay and painted butterfly, which is never seen to greater advantage than when it is sipping the perfumed honey from the delicate petals of the white jasmine.

This beautiful plant grew in Hampton Court garden at the end of the seventeenth century; but, being lost there, was known only in Europe in the garden of the Grand Duke of Tuscany, at Pisa. From a jealous and selfish anxiety that he should continue to be the sole possessor of a plant so charming and so rare, he strictly charged his gardener not to give a single sprig, or even a flower, to any person. The gardener might have been faithful if he had not loved; but, being attached to a fair, though portionless damsel, he presented her with a bouquet on her birth-day, and to render it more acceptable, ornamented it with a sprig of jasmine. The young maiden, to preserve the freshness of this pretty stranger, placed it in the earth, where it remained green until the return of spring, when it budded forth and was covered with flowers. She had profited by her lover's lessons, and now cultivated her highly prized jasmine with care, for which she was amply repaid by its rapid growth. The poverty of the lovers had been a bar to their union; now, however, she amassed a little fortune by the sale of cuttings from the plant which love had given her, and bestowed it, with her hand, upon the gardener of her heart. The young girls of Tuscany, in remembrance of this adventure,

always deck themselves, on their wedding-day, with a nosegay of jasmine; and they have a proverb that "she who is worthy to wear a nosegay of jasmine is as good as a fortune to her husband."

The Hindoos, who use odoriferous flowers in their sacrifices, particularly value the Jasmine for this purpose, and the flower which they call Zambuk.

Sir J. E. Smith tells us that a pope, having dreamed that a great quantity of snow had fallen upon a particular spot during the month of August, upon discovering that his dream had actually been realised, built in commemoration the Borghese Chapel at Rome, and directed that on the anniversary of the day a representation of a snow-shower should be given to the congregation throughout the service. The mimic snow was made of the lovely and fragrant flowers of the white jessamine, and the anticipation of their powerful odour deterred the ladies of Rome from honouring the ceremony with their attendance.

Many persons in our own country are unable to bear the scent which delights others. Some will be affected with head-ache by the smell of the mignonette, the hawthorn, or the lilac. A wreath made of the flowers of the garden laburnum, placed around the head, would in many persons cause extreme pain. Plants which are delightful in the field or garden, as the lily, will in the house affect the nerves of delicate persons.

Jessamine is one of the shrubs of which Milton forms the bower of Adam and Eve in Paradise;

"Thus talking, hand in hand alone they pass'd
On to their blissful bower: it was a place
Chosen by the sovereign Planter, when he framed
All things to man's delightful use; the roof
Of thickest covert was inwoven shade,
Laurel and myrtle, and what higher grew
Of firm and fragrant leaf; on either side
Acanthus, and each odorous bushy shrub,

Fenced up the verdant wall; each beauteous flower,
Iris all hues, roses, and jessamine,
Rear'd high their flourish'd heads between, and wrought
Mosses; underfoot the violet,
Crocus, and hyacinth, with rich inlay
Broider'd the ground, more colour'd than with stone
Of costliest emblem."

"The jessamine, with which the queen of flowers,
To charm her god, adorns his favourite bowers;
Which brides by the plain hand of Neatness dress,

Unenvied rival! wear upon their breast;
Sweet as the incense of the morn, and chaste
As the pure zone which circles Dian's waist."—CHURCHILL.

Jessamine abounds in Italian gardens. In the East it is cultivated for the stems of which pipes are made.

Dallaway speaks of the Turks, "In his pipe an opulent man is extremely sumptuous; the head must be of pale amber, the stick of jasmine wood, with the bark preserved, and the bowl of a delicate red-clay, manufactured at Burgas in Romelia, and highly ornamented. According to the dignity of the smoker is the length of his pipe, often six or seven feet, when it is carried by two of his servants from place to place with much ceremony; and the bowl is supported by wheels as an aid to supreme indolence. In the summer, for greater coolness, the stem of the pipe is covered with cotton or muslin, and moistened with water. This sovereign recreation is not confined to the men; the ladies, especially those advanced in life, partake of it largely; and, as a delicacy, they mix the tobacco with frankincense, musk, or aloes-wood."*

The kinds of Jessamine most frequently grown in pots are the Yellow Indian, and the Spanish or Catalanian. The first grows to the height of eight or ten feet; the leaves continue green all the year, and the blossoms are of a bright yellow, very fragrant, and blowing from July till October or November. They are frequently succeeded by oblong berries, which turn black when ripe.

The Spanish Jasmine, so named because it came to us from Spain, is a native of the East Indies. The flowers are of a deep blush-red outside, and white within: blowing at the same time as the Indian kind. From the middle of May to the middle of October they may stand in the open air; but must then be housed, having as much fresh air as possible in mild weather. They should have but little water at a time, but that should be given often, so that the earth may always be moist. In spring, the decayed branches should be pruned; and of the Spanish kind the sound ones should be pruned to the length of two feet, which will cause them to shoot strong, and produce many flowers. But this liberty must not be taken with the Indian kind.

In the language of flowers, the Jasmine is the emblem of amiability.

* Dallaway's Constantinople, p. 85.



Anthemis Pyrethrum.

ATHEMIS PYRETHRUM.—SPANISH CHAMOMILE, OR PELLITORY OF SPAIN.

Fig. (a) and (b) represent a front and back view of the floret of the radius; (c) a floret of the disc; (d) the style; (e) the stamens.

PELLITORY of Spain is a perennial plant, a native of the Levant, Syria, Arabia, Barbary, and the south of Europe. It has long been celebrated as a medicinal agent; and merits a place in our collections, on account of the beauty both of the foliage and flowers: it is a very rare plant in this country, notwithstanding it was cultivated here, by Lobel, as long since as 1570. Parkinson, it appears, grew it; as he observes, that the roots of the cultivated plants were much larger than those of the wild ones: he tells us also, that it was too tender to endure our winters; and to the latter cause, as well as to the difficulty of propagating it, for it does not ripen its seeds in this country, its present scarcity has been attributed.

The root is long, tapering, about the thickness of a finger, which runs down a foot or more into the ground, with a brownish cuticle, and sending off several small fibres. From the root proceed several procumbent stems, about a foot in height, round, hairy, commonly unifloral, and seldom branching. The leaves are doubly pinnate, with narrow linear segments, of a pale green colour. The flowers appear in June and July; they are large, terminal, solitary, with the florets of the disc yellow, and those of the radius white on the upper side, and of a purplish colour underneath. The florets resemble those of *Anthemis nobilis*; in the centre, or disc, they are united: those of the circumference, margin or radius, are pistilline, that is, have no stamens, at least in perfect condition; and hence, as the flowers of the disc are sufficient to perpetuate the species, the extra pistilliferous ones of the ray were said by Linnæus to be *superfluous*.

SPECIFIC CHARACTER. *Stems* simple, 1-flowered, decumbent; *leaves* bipinnate, segments linear, pointed.

CHEMICAL ANALYSIS.—M. *Gouthier* says, that in 100 parts of the root of this plant he found—

Oil, fixed	5	Muline	33
— Volatile	a trace	Muriate of Lime	a trace
Yellow colouring matter	14	Lignin	35
Gum	11	Moss	2

100

QUALITIES.—The dried root of Pellitory has no smell. On being chewed, the taste, which is acrid, is not immediately perceived, but it quickly raises a glowing heat, and a plentiful secretion of saliva. Grew says, “The heat produced by Pyrethrum is joined with a kind of vibration, as when a flame is brandished with a lamp furnace Being chewed, it makes a sensible impression on the lips, which continues (like the flame of a coal betwixt in and out) for nine or ten minutes; but the heat in other parts much longer. This heat is by no means so painful as that which the arum, capsicum, and some other plants produce. Alibert says, “Par la distillation, cette racine fournit une huile butyracée très acrimonieuse;” and it is on this oil, which is deposited in vesicles on the bark, that its pungency depends. It is completely extracted by alcohol and sulphuric ether.

MEDICAL PROPERTIES AND USES.—This root is a powerful stimulant; and if applied in its recent state to the skin, it produces inflammation and vesication, like Mezereon.* Dioscorides recommended it for tooth-ache, for which it is still beneficially employed by us; and by him and the Arabian physicians it was prescribed for rigors.

* Grew of Tastes.

The Persians and Moguls consider it to be discutient and attenuant; and the Vytians prescribe an infusion of it, in conjunction with other medicines, as a cordial and stimulant in lethargic cases, in palsy, and in certain stages of typhus fever. In consequence of the immense flow of saliva that it is capable of producing, "inflammations and congestions of the neighbouring parts are relieved. Hence it has been found useful, when chewed, in some kinds of head-ache, chronic ophthalmia, and rheumatic affections of the face, and, by its direct stimulus, in paralysis of the tongue and muscles of the throat." This drug is often adulterated with the roots of *Achillea Plarnica* and *Chrysanthemum frutescens*.

The following is a brief extract concerning the festivities formerly observed on Christmas day at the Inner Temple. Service in the church being ended, the gentlemen presently repaired into the hall and breakfasted on brawn, mustard, and malmsey. At the first course, at dinner, was served up a fair and large boreshead upon a silver platter, with minstralsye. This custom is still observed at Queen's College, Oxford, and tradition represents this usage as a commemoration of an act of valour performed by a student of the college, who while walking in the neighbouring forest of Shotover and reading Aristotle, was suddenly attacked by a wild boar. The furious beast came open mouthed upon the youth, who, however, very courageously, and with a happy presence of mind, is said to have 'rammed in the volume,' and cried *Græcum est*, fairly choking the savage with the sage.*

On Christmas-eve, (new-style,) 1753, a vast concourse of people attended the noted Glastonbury thorn, but to their great disappointment there was no appearance of its blowing, which made them watch it narrowly the 5th of January, the Christmas-day (old style,) when it blew as usual.—*London Evening Post*.

On the same evening, at Quainton, in Buckinghamshire, about two thousand people went, with lanterns and candles, to view a blackthorn in that neighbourhood, and which was remembered to be a slip from the famous Glastonbury thorn, and that it always budded on the 24th, was full blown the next day, and went all off at night. The people finding no appearance of a bud, it was agreed by all, that December 25 (new style) could not be the right Christmas-day, and accordingly refused going to Church, and treating their friends on that day as usual: at length the affair became so serious, that the ministers of the neighbouring villages, in order to appease them, thought it prudent to give notice, that the *Old* Christmas-day should be kept as before.

The Abbey of Glastonbury in Somersetshire, now a heap of ruins, and of whose origin none but vague memorials exist, was said, by the monks, to have been the residence of Joseph of Arimathea. According to their legend, he came to Britain accompanied by eleven followers, and raised to the memory of the Virgin the first Christian temple erected in this country. The celebrated hawthorn bush is said to have sprung from a staff which Joseph stuck into the ground on Christmas-day, which, blossoming immediately, attested the approbation of God to his mission, as the blooming of Aaron's rod confirmed the priesthood to the family of Israel, while the yearly blooming of this hawthorn, at this unusual season, was regarded by the monks as sufficient confirmation of the truth of their statement. A fable propagated probably by some who had an interest in attaching sacredness to the Abbey and its precincts, easily obtained belief in those superstitious times, when all that was not evident to the senses was recognised as miraculous. And this thorn, which is certainly interesting from its singularity, was regarded formerly almost universally with blind veneration.

The flowering of the Glastonbury thorn was once deemed so great a wonder, that our merchants annually exported its blossoms into foreign countries, for the benefit of the curious. The original tree of the Abbey garden was partly cut down in the reign of Elizabeth by the Puritans, who in their pious zeal to clear away the superstitions of the land, were too prone to destroy anything, however valuable, to which a legend was attached. The other part was cut down during the Great Rebellion. At that time, however, a number of plants derived from the original stock were in existence.

It is now well known that the Glastonbury hawthorn is not regular in the day of putting forth its blossoms; and although it flowers in December, January, or February, this occurs as often in the last as in the first-named month. Cuttings taken from this thorn, have retained their peculiarity of bearing blossoms in winter, and a hawthorn in the arboretum of Kew gardens, is often covered with its white clusters while the snow surrounds it.

* Wade's Walks in Oxford.



Coccinella Bentinckiana!

CICONIUM BENTINCKIANUM.—BENTINCK CICONIUM.

CLASS XVI. MONODELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, GERNIACEÆ.—THE GERANIUM TRIBE.

THE name, Geranium, is derived from the Greek language, and signifies a crane; the fruit having the form of a crane's bill and head. The English name is Crane's-bill; but the plant is more generally known by its botanical appellation. The Geranium is divided into three genera: *Erodium* is the first, *Pelargonium* the second, and the third retains the old name of Geranium, which, indeed, is still familiarly used for them all, as well as the English name Crane's bill. *Erodium* is from the Greek, and signifies a heron, whose bill is similar to that of the crane; *Pelargonium* is from the same language, and signifies a stork, whose bill is equally long. *French*, le geranium; la geraine; bec de grue; bec de cicogne. *Italian*,—geranio, becco di gru.

Stem shrubby, succulent, branching; *branches* thickly clothed with spreading unequal white hairs, which are slightly bent downwards. *Leaves* roundly kidney-shaped, shortly 5 or 7-lobed, the lobes bluntly rounded, crenulate, the notches very shallow, thickly clothed on both sides with short soft white hairs, which gives a glossy and velvety appearance when viewed towards the light, very soft to the touch, but the leaves altogether thicker, and the hairs on them much longer than in *C. fulgens*, a nearly related plant. *Petioles* a little flattened on the upper side and rounded on the lower, very thickly clothed with spreading white hairs, the smaller ones inclining downwards, the longer ones spreading horizontally. *Stipules* broadly cordate, acute, hairy, and fringed. *Peduncles* very long, cylindrical, clothed with very unequal spreading hairs. *Umbels* many-flowered. *Involucre* of numerous very unequal deciduous bractes, some of them broadly cordate, others lanceolate, acute. *Pedicles* about the length of the bractes. *Calyx* 5-cleft, segments short, lanceolate, acute, spreading. *Nectariferous tube* variable in length, of a purplish brown colour, 3 to 5 times longer than the calyx, flattened and furrowed on both sides, and gibbous at the base, thickly clothed with spreading short hairs, that are all tipped with a little globular gland. *Petals* 5, roundly obovate, the two upper ones rather smallest, two nerved at the back, the nerves branching: lower ones strongly 2-nerved at the base, which branch in small veins all over the petals. *Filaments* 10, erect, connected at the base, 7 bearing anthers, two upper ones very short: *pollen* granular, orange-coloured. *Style* short, naked, pale-coloured. *Stigmas* 5, pale red, fimbriate, reflexed.

There is no end to the varieties of Geranium, and as new ones continually occur, there most probably never will be an end to them. There are many plants bearing this title which have no kind of resemblance to these in their general appearance, and which the most passionate lover or attentive observer of these beautiful plants, unskilled in the mysteries of botanical science, would never discover to belong to them.

The *Erodiums*, with very few exceptions, may be increased—the annual kinds from seed, the perennial by parting the roots in autumn,—and will thrive in the open air. The principal exceptions are the *Crassifolium*, or Upright Crane's-bill, the *Incarnatum*, or Flesh-coloured, the *Glaucophyllum*, or Glaucous-leaved, and *Chamaedryoides*, or Dwarf Geranium, which must be treated as the *Pelargoniums*.

The Geranium, specifically so called, may be treated in the same manner as the *Erodiums*, and will thrive in almost any soil or situation. The *Pelargoniums*, which constitute the principal division of this great genus, require more care. They may be easily raised from seed; but a person desiring large and early flowers will procure a plant which has been raised in a hot-bed.

The Shrubby African Geraniums are commonly increased by cuttings, which, planted in June or July, and placed in the shade, will take root in five or six weeks. In September, or in October as the weather is more or less mild, they must be housed: even when grown, the *Pelargoniums* must be housed in winter; at which time they should be gently watered twice a week, if the weather is not frosty. In May they may be gradually accustomed to the open air, and about the end of that month be placed abroad entirely in the day; but should still for the next two or three weeks be under cover at night, though fresh air must be admitted. After that time they must be defended from strong winds, and be so placed as to enjoy the sun till eleven o'clock in the morning.

As the shrubby kinds grow rather fast, they will sometimes fill the pot with their roots, and push them through the opening at the bottom; they must therefore be moved every two or three weeks in the summer, and the fresh roots which are seen pushing through must be cut off. They should also be newly potted twice in the course of the summer; once about a month after they are placed abroad, and again towards the end of August. When this is done, all the roots on the outside of the ball of earth should be carefully pared off, and as much of the old earth removed as can be done without injuring the plants. If they then

require a larger pot, they should be planted in one about two inches wider than that from which they have been removed. Some fresh earth should first be placed at the bottom, and on that the plant should be placed in such a manner, that the ball of earth adhering to it may be about an inch below the rim of the pot: it should then be filled up, and the pot a little shaken to settle the earth about the roots: the earth must then be gently pressed down at the top, leaving a little space for water to be given without running over the rim: finally, the plants should be liberally watered, and the stem fastened to a stake, to prevent the winds from displacing the roots before they are newly fixed.

As the branches advance in growth, and new leaves are formed at the tops of them, the lower ones constantly decay; these should be plucked off every week or fortnight; as they are not only unsightly, but injurious to the air about the plants.

"The soil must be renewed, which often washed
Loses its treasure of salubrious salts,
And disappoints the roots; the slender roots
Close interwoven, where they meet the vase
Must smooth be shorn away; the sapless branch
Must fly before the knife; the withered leaf
Must be detached, and where it strews the floor,
Swept with a woman's neatness, breeding else

Contagion, and disseminating death.
Discharge but these kind offices, (and who
Would spare, that loves them, offices like these)
Well they reward the toil. The sight is pleased,
The scent regaled, each odoriferous leaf,
Each opening blossom freely breathes abroad
Its gratitude, and thanks him with its sweets."

COWPER.

The tube-rooted kinds may be increased by parting the roots, which should be done in August: every tuber that has an eye to it will grow. Such as are raised from slips should be planted in May, June, or July, taking only the last year's shoots, from which the lower leaves must be stripped. When planted, give them water, and place them in the shade. In four or five weeks they will have taken root, when they may be so placed as to enjoy the sun till eleven in the morning, and there remain until removed to their winter quarters. The slips chosen for cutting should not be such as bear flowers; and they should be inserted about half their length in the earth.

Many of the Geraniums are annual; and as they are so numerous, it would be well, where there is room but for a few, to select such as are perennial. The cuttings of different species of the Pelargoniums do not all strike root with equal readiness.

The shrubby kinds are the most tender; the others require shelter from frost only, and should have free air admitted to them whenever the weather is not very severe: in mild weather, the shrubby kinds also may be permitted to enjoy the fresh air.

In sultry weather the Geraniums should all be watered liberally every evening, with the exception of some few of the Pelargoniums, which are of a succulent nature. Those must be watered sparingly. The succulent ones may be discerned by merely plucking a leaf from them. The season for flowering is generally from April to August.

Those who are curious in Geraniums may see them figured in most of their known varieties, in a very beautiful work, published in numbers, entitled Andrews' Monograph on the Genus Geranium. This work represents them in their full beauty; and, being very finely coloured, gives you as good an idea of them as if you had seen the plants themselves. The Elegant, the Magnificent, and the Handsome kinds fully justify their titles. The *Geranium Tricolor Arboreum*, or Three-coloured Tree Geranium, is similar, both in the form of the leaves and the flowers, to the Hearts-ease: the flowers are white and red, and uncommonly beautiful. In appearance it is neither more nor less than a large red and white Hearts-ease. The Oval-leaved Three-coloured Geranium bears a flower somewhat smaller, but of the same form and colour. The Birch-leaved, in all its varieties, is remarkably handsome, with brilliant red flowers. The Wrinkly-leaved has very large and beautiful blossoms: the Sea-green-leaved is an exceedingly elegant and delicate plant: the Heart-leaved particularly luxuriant.

Mr. Andrews observes, that the varieties of the *Geranium Citriodorum*, or Citron-scented Geranium, are the only ones which make a powerful appeal to the olfactory nerves, without rubbing the leaves. Most of them emit an agreeable odour when lightly rubbed with the finger; and a person approaching a Geranium almost mechanically rubs or plucks a leaf for its perfume; or, with some species, for its soft velvety surface:—

"And gentle Geranium
With a leaf for all that come,"

seldom fails of obtaining notice and admiration, however it may be surrounded by the most curious or brilliant exotics.

The Thick-stemmed Geranium is a very singular plant. "This species," says Mr. Andrews, was found (by Mr. Antoni Pantaleo Hove, in 1785, while Botanical Collector to his Majesty) near five feet high, in the bay of Angra Peguena, on the south-western coast of Africa, in the chasms of a white marble rock, apparently without any earth; for, on pulling up the plant, the roots were several yards in length, naked, and as hard as wire; and appeared to have received nourishment solely from the moisture lodged there during the rainy season, assisted by a little sand drifted by the wind into the cavities. The heat was so intense on these rocks as to blister the soles of the feet; and yet all the Geraniums there were in perfection, being just then their flowering season, about the middle of April.

The scarlet Geranium is the emblem of stupidity.

• *Flora Domestica.*





Coreopsis grandiflora.

COREOPSIS GRANDIFLORA.—THE LARGE FLOWERED COREOPSIS.

CLASS XIX. SYNGENESIA.—ORDER III. POLYGAMIA-FRUSTRANEA.

NATURAL ORDER CORYMBIFERÆ.

The generic name is from the Greek, bug-like, the seed being like a bug or tick: hence it is called by gardeners the Tick-seeded Sunflower.

GENERIC CHARACTER. *Cal.* common, either simple, subimbricate, or doubled; the exterior usually with eight leaflets, which are coarse, and placed in a circle; the interior with as many larger ones, membranaceous, and coloured. *Cor.* compound rayed: corollets hermaphrodite numerous in the disk: females eight in the ray. *Stam.* in the hermaphrodites: filaments five, capillary, very short. Anther cylindric, tubular. *Pist.* in the hermaphrodites: germ compressed; style filiform, length of the stamens; stigma bifid, acute, slender: in the females, germ like the hermaphrodites; style and stigma none. *Per.* none. Calyx scarcely altered. *Seed* in the hermaphrodite solitary, orbiculate, convex on one side, concave on the other, with a transverse protuberance at the top and bottom, surrounded by a membranaceous edge, with a two-horned tip: in the females none. *Recept* chaffy.

This showy annual may be considered a great acquisition to our gardens,

" where'er she
Rolls her dark eye, and waves her golden hair."

From the beauty of its flowers it may be said to have eclipsed all the other species of this family: the bright golden appearance of its petals, renders it remarkably conspicuous. Its free disposition to flower, and the continued succession of blooms with which this plant is decked, demand for it a conspicuous place in the flower border.

The Whorl-leaved *Coreopsis* has a yellow flower with a purple centre: it is a showy plant, grows very tall, and continues long in flower. It begins to blossom in July. It is a native of North America, where the flowers, although yellow, are used to dye cloth red.

The Three-leaved has the same coloured flowers, and is from the same country.

The Alternate-leaved, Thick leaved, and Golden, are all from North America. The first flowers in October and November; the other two from August to October. These are all perennial plants, as are most of the genus.

They may be increased by parting the roots, which should be done in autumn, when the stalks begin to decay. The two first prefer a light loamy earth, and exposure to the sun; the others will thrive in almost any soil or situation. There are other species of this genus, some of which are raised in a hot-bed; but their treatment, when grown, is generally the same. The kinds here named will bear the open air. The earth should be kept just moist, and the plants be supported by sticks as they advance in height, or the strong winds of autumn may be apt to break them.

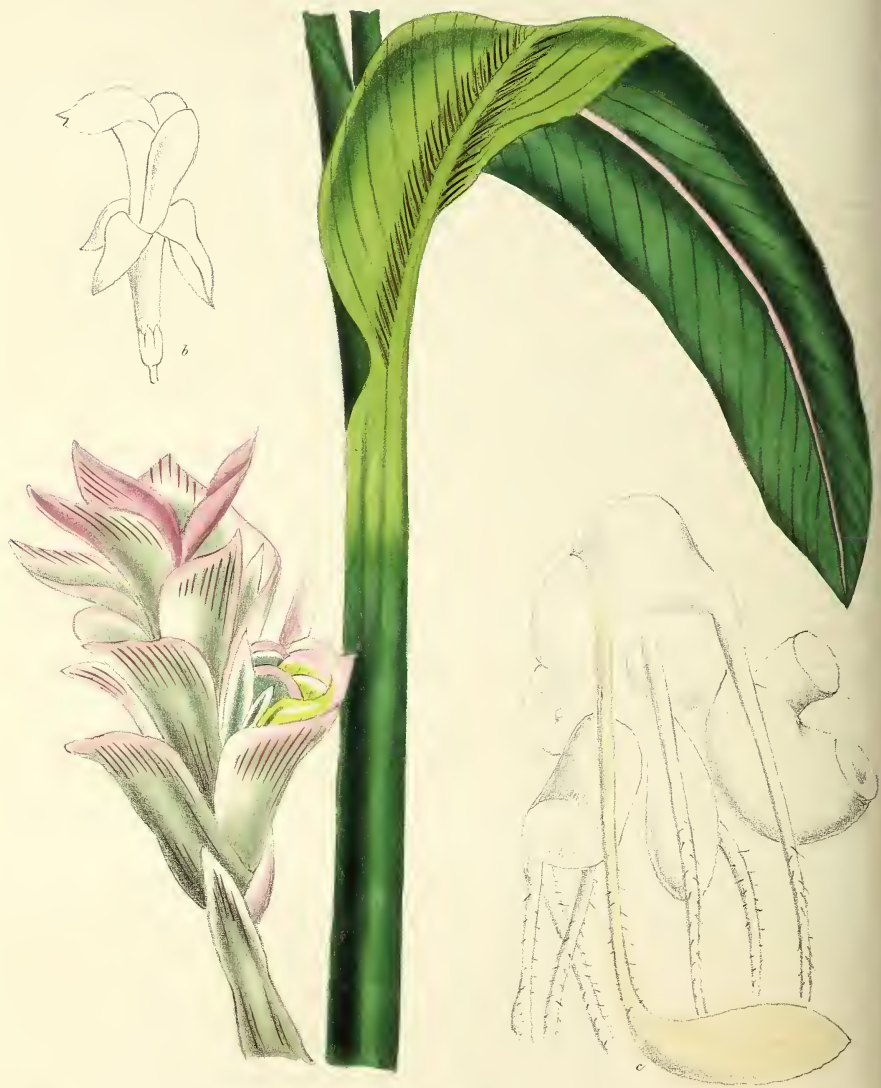
"Lord Bacon, (Essay 46,) calls a garden 'the purest of human pleasures.' Admitting and valuing fully the truth of this assertion, it must be added, that it is also a pleasure which is easily procured, and which lasts throughout a very large portion of the year. In saying that a garden is easily procured, we must be understood to mean a garden in which the objects desired by the cultivator are show, gaiety, and neatness. Where rarity and refinement are wished for, the case is wholly altered; the first can be obtained at a small cost, but there is no limit to the expense of the second. It is of the method of cultivating and displaying flowers in a garden of the less refined sort that we shall now chiefly treat, and we do so because of the great increase of these gardens that is visible: the smallest villa, or the larger farm-house, are now rarely without their beds of flowers; and a few hints may be useful to their proprietors. It is obviously desirable, where the varieties of flowers cultivated are few in number, that they should be chosen with regard to the following qualities: the size, the brilliancy, and the smell of their blossoms, the variety of their colours, and more especially the length of time which they continue to blow. This last point is very material, because, if it is disregarded, a large stock of plants will be requisite to keep up a succession, and the labour of planting and replanting, moving and removing, will multiply trouble and expense. As a very large majority of annuals are deficient in this quality, it must be to biennials and perennials that the gardener must chiefly trust. Many of these plants not being sufficiently hardy to stand exposure to an

English winter, some shelter must be provided for them during that season. Room for a considerable number may commonly be found in the house of the owner of the garden: they can be placed in windows and in passages, where they will remain in health, if in cold weather the house is continually inhabited. If this cannot be done, shrubby plants may be well, though not so well preserved, by taking them up at the beginning of winter, cutting back the branches, and stowing the roots in a dry cellar, whence they must be taken early in the spring, and potted and watered in a shed room or very sheltered place to forward them for the summer. The best method of keeping them in the winter (and in this method with care there is no risk whatsoever of loss,) is in a brick pit with two or three glass lights, warmed by a small stove and flue: the cost of building such a pit will usually be about £10. Some breakage of glass must of course be considered as an annual cost. The quantity of fuel used will be too small to take into consideration; a few cinders are all that is requisite. Thousands of plants may be kept in one such pit.

Plants may be multiplied in many ways, by budding, grafting, innarching, by layers, pipings, and cuttings, by suckers, the division of roots and tubers, and by seed: and there are very few species from which by some of these methods an increase cannot be obtained. So easy indeed is the multiplication of plants, and so large a number of new plants can with proper management be raised from one original stock in the course of a year, that the nursery gardeners find it impossible (excepting in rare instances) to maintain a high price for a new flower beyond two or three years: the first year the price of a new flower may be £5, the second it will be about 30s., the third year not more than 2s. 6d. The method applicable to the greatest number of plants, and which is successful with ordinary management, is that of cuttings: from the parent plant small slips or cuttings are taken where the wood is not very tender, and if practicable at a joint. The cuttings should be planted about two inches apart, in large pots or boxes, and the pots placed in a moderately warm hot-bed, shaded from the sun. In about a fortnight they will strike root, and begin to grow. They should then be gradually hardened, be put as far as practicable, into separate pots, and removed into the flue-pit, where plenty of air must be given them in the day-time to prevent their damping off, and a fire be lit before frosty nights: the additional security of mats thrown over the frames must be used when the weather is unusually severe. The time of removing the plants from their winter quarters must depend upon their nature and the climate in which they are to grow. The last week in May or the first in June, is the earliest time at which the tenderest will bear a thorough exposure; for one or two previous weeks, they should be hardened by gradual exposure to the wind and cold nights, care being taken to protect them with mats if either should be in excess. The cultivation of dahlias is commenced in the second or third week in February, when the roots which have been taken up in the autumn should be put into a hot-bed, kept, as far as practicable, at a uniform heat of 62° to 65°; a little of the earth in the bed should be spread over them, and water liberally given them once a day. The roots will then push out suckers, one from each eye: these should be separated from the bulbs: a few fibres of the old root being torn off with them, and being treated after the manner of cuttings, will strike and be ready to plant out at the end of May. It is a fault with gardeners generally that their dahlias flower too late. The first flowers are seldom perfect, and it often happens that the plants have not long reached their prime before they are either pinched by cold nights or perhaps altogether destroyed by frost. It is therefore desirable that the plants should never be checked in the early stages by want of heat or otherwise. Perennial herbaceous plants may be easily multiplied by dividing the roots either in the autumn or in spring. Annuals are principally raised from seed sown in April and May, either upon a hot-bed, from which they must be transplanted, or in the situation in which they are to grow. Sweet-peas and mignonette, nemophylla insignis, poppies, &c., are very shy of being transplanted unless from pots. Mallows, coreopsis, China, and German asters, French and African marigolds, *eutoca*, *viscida*, *nolana* *prostrata*, &c., will be better raised on a hot-bed. New annuals are continually produced: we do not, however, consider them generally as a desirable class of flowers.

There are two methods of arranging flowers with a view to their display—1st, putting each species in a separate bed; 2nd, mixing two or more species in one bed. Each has its merits, and in every garden both should be practised. When flower-beds situated close to each other are to be filled with one species only, it will be requisite to consider the height and colour of the flowers to be planted, that both symmetry and harmony may be preserved. Yellow flowers, especially among those that grow from six inches to two feet in height, are more numerous than flowers of any one other colour, and care must be taken not to plant them in undue proportion. When several species are to be planted in the same bed, the largest bed must be chosen, the tallest species be placed in the middle, and various colours mixed together; sufficient space should be left for each plant to grow freely without interfering with or confusing its branches with those that are next to it. Flowers for the most part like a rich, light, new soil. The spot chosen for a flower-garden should be dry, open to the sun, and sheltered from wind and cold.*

* Cyclopædia of the Society for the diffusion of Useful Knowledge.



Curcuma Zedoaria.

CURCUMA ZEDOARIA.—ZEDOARY.

CLASS I. MONANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SCITAMINEÆ.—THE GINGER TRIBE.

FIG. (a and b) represent the flower; (c) the root.

THIS plant is a perennial, growing in sandy open places in various parts of India, particularly in Ceylon and Malabar; flowering during the hot season. The rhizoma is tuberous, oblong, about the thickness of a man's thumb, fleshy, aromatic, and of a pale straw colour. The leaves are radical, as it is only the sheaths that create the appearance of a short stem; they are broad, lanceolate, inequilateral, smooth on both sides, of a green colour, with a ferruginous cloud down the middle on the upper surface, and a fainter cloud in each side of the mid-rib below. They are bifarious and herbaceous, making their appearance with the first showers of April or May, and perish about the beginning of the cool season in November. The inflorescence is a simple erect scape, which rises from among the leaves, and is terminated by a loosely imbricate, cylindrical, truncated, lateral spike of flowers. The outer limb of the corolla is straw-coloured; the lip ovate, emarginate, yellow towards the apex. The filament is petal-like, 3-lobed, bearing the anther in the middle. The anthers are double; the lobes separated by a deep groove, through which the style passes; the lower end of each lobe ending in a large conspicuous spur, which is the essential character of the genus. The germen is superior and 3-celled; style filiform; stigma somewhat bilabiate. The capsule is ovate, smooth, of a pale straw-colour, thin and nearly pellucid, 3-celled; seeds several in each cell.

The pale colour of the roots, crimson bracteas, and ferruginous mark down the centre of the leaves, which is a constant character in this elegant species, readily distinguish it from every other.

QUALITIES AND CHEMICAL PROPERTIES.—The root is brought over in oblong pieces, about the size of the little finger; or in roundish ones about an inch in diameter; of an ash colour on the outside, and white within. They vary little in power, and are therefore used indiscriminately. Zedoary has an agreeable camphoraceous smell, and a bitter aromatic taste. It impregnates water with its smell, a slight bitterness, a considerable warmth and pungency, and a yellowish-brown colour. It imparts more bitterness, but less odour to spirit. It yields in distillation with water, a ponderous, and pungent essential oil; and the decoction thus deprived of the aromatic matter, and concentrated by inspissation, is disagreeably bitter and subacid.

MEDICAL PROPERTIES AND USES.—"This root is a very useful aromatic and stomachic. It was formerly much celebrated for colic, in hysteric affections, when attended by flatulency, and in scurvy and, as its virtues depend principally on its camphoraceous volatile oil, we see no reason for so readily discarding it from the materia medica, as some authors recommend.

Dr. Ainslie informs us, that the best comes from Ceylon, where it is used as a tonic and carminative. It is evidently the *zerumbet* of Serapion, and *zerumbad* of Avicenna, who extols it highly: "Discutit flatus, cor recreat, vomitionem, compositat ad venenatarum bestiarum morsus efficac est."—*Canon. Med. lib. ii. tract. ii. p. 11.* The modern Arabs consider it to be tonic, de-obstruent, and aphrodisiac. Its spirituous extract once made an ingredient in the cordial confection of the London Pharmacopœia; but an infusion is the form generally prescribed.

Dose.—In substance, gr. x. to ʒss.

CURCUMA LONGA.—TURMERIC, OR INDIAN SAFFRON.

THE root of this plant, which has been admitted into the Dublin Pharmacopœia, and is used by the dyers to give a yellow colour, is a native of the East Indies, China, and Cochin-China, and is very generally cultivated over the southern parts of Asia. The root, or rather rhizoma, according to Louriero, is perennial, creeping, fleshy, palmate, with cylindrical branches, and covered with a pale saffron coloured bark. Stem none. Leaves broad, lanceolate, large, quite entire, smooth, annual, pale green, densely furrowed with oblique slender lines; petioles long, erect, dilated at their base, minutely supporting and clasping each other. Scape external, three inches long. Flowers sessile, white, with a yellow nectary, one within each scale of the spike.

It is brought chiefly from the East Indies; but is common in the gardens of the Chinese; who use it

as a sternutatory, and it grows abundantly in Malacca, Java, and Belega. In England it was first cultivated by Miller in 1759. The dried root is externally greyish, and internally of a bright yellow or saffron colour; is very hard, and somewhat resembles ginger in figure and size. It should be chosen large, fresh, resinous, hard to break, and heavy.

QUALITIES AND CHEMICAL PROPERTIES.—Turmeric has a slightly aromatic odour, and a bitterish somewhat acrid taste. It readily gives out its active matter, both to aqueous and spirituous menstrua, communicating to the former a deep yellow, and to the latter a fine yellowish-red tint. Distilled with water it yields a small quantity of a gold-coloured essential oil. The alcoholic extract is moderately warm, nauseous, and bitter.

MEDICAL PROPERTIES AND USES.—The medical virtues of turmeric are those of a slight stimulant and tonic. In Eastern countries this root, besides its use in colouring food, is considered as cordial and stomachic. It is a constant ingredient in curries,* and is prescribed by the Tamool doctors, in these watery diarrhoeas which are so troublesome and difficult to subdue in weak habits. Although the use of this root has been celebrated formerly as a powerful remedy in dropsies, intermittent fevers, and as a specific in the jaundice, it is now very rarely prescribed.

Usually at this period the rigour of cold is severely felt. The indisposition of *lie-a-beds* to face its severity is pleasantly pictured by a popular author. He imagines one of those persons to express himself in these terms: "On opening my eyes, the first thing that meets them is my own breath rolling forth, as if in the cottage-chimney. Think of this symptom. Then I turn my eyes side-ways and see the window all frozen over. Think of that. Then the servant comes in. 'It is very cold this morning, is it not?'—'Very cold, sir?'—'Very cold indeed, isn't it?'—'Very cold indeed, sir.'—'More than usually so, isn't it, even for this weather?' (Here the servant's wit and good nature are put to a considerable test, and the inquirer lies on thorns for the answer.) 'Why, Sir. . . . I think it is.' (Good creature! There is not a better, or more truth-telling servant going.) 'I must rise, however—Get me some warm water.'—Here comes a fine interval between the departure of the servant and the arrival of the hot water; during which, of course, it is of 'no use' to get up. The hot water comes. 'Is it quite hot?'—'Yes sir.'—'Perhaps too hot for shaving; I must wait a little'—'No sir; it will just do.' (There is an over-nice propriety sometimes, an officious zeal of virtue, a little troublesome.) 'Oh—the shirt—you must air my clean shirt:—linen gets very damp this weather.'—'Yes, sir.' Here another delicious five minutes. A knock at the door. 'Oh, the shirt—very well. My stockings—I think the stockings had better be aired too.'—'Very well, sir.'—Here another interval. At length every thing is ready, except myself. I now cannot help thinking a good deal—who can?—upon the unnecessary and villainous custom of shaving; it is a thing so unmanly (here I nestle closer)—so effeminate, (here I recoil from an unlucky step into the coldest part of the bed.)—No wonder, that the Queen of France took part with the rebels against that degenerate king, her husband, who first affronted her eye with a face like her own. The emperor Julian never showed the luxuriance of his genius to better advantage than in reviving the flowing beard. Look at cardinal Bembo's picture—at Michael Angelo's—at Titian's—at Shakspeare's—at Fletcher's—at Spenser's—at Chaucer's—at Alfred's—at Plato's. I could name a great man for every tick of my watch. Look at the Turks, a grave and otiose people—Think of Haroun Al Raschid and Bed-ridden Hassan—Think of Wortley Montague. Look at the Persian gentlemen, whom one is ashamed of meeting about the suburbs, their dress and appearance are so much finer than our own—Lastly, think of the razor itself—how totally opposed to every sensation of bed—how cold, how edgy, how hard! how utterly different from any thing like the warm and circling amplitude, which

Sweetly recommends itself
Unto our gentle senses.

Add to this, benumbed fingers, which may help you to cut yourself, a quivering body, a frozen towel, and an ever full of ice; and he that says there is nothing to suppose in all this, only shows, at any rate that he has no merit in opposing it.

* **CURRY POWDER.**—The following receipt for curry powder is taken from the "Cook's Oracle." The ingredients are the same as those used in India, with this difference only, that some of them are in a raw green state, and are mashed together, and afterwards dried and powdered;—Turmeric, three ounces. Coriander seeds, three ounces. Black pepper, mustard, and ginger, one ounce of each. Lesser cardamons, half an ounce. Cayenne pepper, cummin seeds, a quarter of an ounce of each. Thoroughly pound and mix together, and keep them in a well-stopped bottle.



Lilium speciosum.

LILIUM SPECIOSUM.—SHEWY LILY.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, TULIPACEÆ.

LILIUM SPECIOSUM. STEM a scaly bulb, from which springs the part bearing the leaves and flowers. Leaves scattered, alternate, shortly petiolate, lanceolate, acute, about six inches long, green on both surfaces but of a lighter hue beneath, which is almost shining. From the base to the apex of each leaf run several parallel veins or nerves, which are very prominent on the under surface, the central ones most conspicuous, the lateral ones less so. Flowers axillary and terminal solitary. Perigone (corolla of Linnean writers) of six folioles, of which three are exterior, three placed more internal, of an exquisite rose-colour, Each foliole unguiculate at the base, but with the limb reflected, whitish towards the base, but near the central part, of a pink or red ground, marked with prominent points and round spots. Stamens six, filaments thick below, tapering towards the apex; anthers versatile: pollen brownish yellow. Style one, somewhat club-shaped. Stigma yellow, 3-lobed.

POPULAR AND GEOGRAPHICAL NOTICE. This species, perhaps one of the most gorgeous of that tribe which Linnaeus termed the patricians of the vegetable kingdom, is a native of Japan, a country with the productions of which we are very imperfectly acquainted, owing to the jealousy of its people, which is as great as that of their Chinese neighbours. Siebold was, however, allowed to penetrate into the interior, and brought off the present plant among his other spoils.

INTRODUCTION; WHERE GROWN; CULTURE. The first plants were sent by Siebold to Holland, and by propagation are now in the hands of the nurserymen of Ghent, from whom bulbs were purchased by the Messrs. Loddiges at Hackney, in 1836. It is not yet ascertained what degree of temperature this splendid Lily will bear, but it may be presumed that protection from frost will be all that is requisite. A light loamy soil, upon a dry bottom, is favourable to the growth of such plants. From various trials of bog earth, however well it may have been pulverized by frost, or the addition of sand, we believe it to be injurious to the growth of Lilies.*

The accounts we have received of the gardens of antiquity are for the most part considered fabulous. The hanging gardens of Babylon have been represented as romantic in point of situation, and magnificent not only for their extent, but also for the natural difficulties which were surmounted in their construction. The useful had, however, but little part in their design; and of the less aspiring spots, which were made to minister to the wants of the people of that city by the production of esculent vegetables, it has not been thought necessary to say one word.

We have abundant reason for believing that the Jews, during their existence as an independent nation, were accustomed to cultivate fruits in abundance, but no mention can be found of the particular herbs and plants which they without doubt produced for their daily consumption.

Our knowledge of the mode of gardening practised in the Chinese empire has been obtained at periods of recent date; yet, from what we know of the inveterate pertinacity wherewith its inhabitants adhere to the customs of their ancestors, we are warranted in believing that the practice of this art has been without any material alteration for many centuries. The learned Jesuits Du Halde and Le Comte, who resided as missionaries in China, speak in commendation of the manner in which the cultivation of culinary vegetables is managed in that country, where indeed the practice of horticulture appears to have reached to considerable perfection, although the scientific principles upon which it should be founded are wholly unknown.

It is said that the lower orders of people in some parts of China draw a chief part of their nourishment from the produce of their gardens, and that they are in possession of some garden esculents which are peculiar to themselves. We are indebted to China for several valuable additions to our flower-gardens, and among the rest for various species of the Camellia, Pæonia, and Rose; and it is reasonable to suppose that the same care would have been taken for the transmission of seeds of new descriptions of esculents had any such presented themselves.

In an empire comprehending so great a variety of climate, the natural productions must doubtless be extremely varied, and the Chinese are said to be in the enjoyment of most of the fruits and vegetables that

* The Botanist.

are reared throughout Europe. There is little that is worthy of remark in what has been stated with regard to the methods employed for the cultivation of their vegetable gardens. Recent travellers have endeavoured to throw an air of discredit upon the relations of the learned men whose accounts have been noticed. It is indeed not impossible that these reverend Fathers may have endeavoured to draw a little upon the credulity of their readers; but, on the other hand, it must be considered, that while our own intelligent countrymen who have been admitted within the borders of the Celestial Empire have had their opportunities for observation limited to the time employed in the performance of a rapid journey, during which they were always watched by a government escort, their precursors remained for a considerable time in the country, and could consequently examine things at their leisure and in comparative freedom.

From the earliest times the Persians have been great gardeners; but historians and travellers have only thought deserving of their notice gardens which have been constructed for the pleasure of monarchs, or as proofs of their wealth and power.

That the Greeks also took pleasure in horticultural pursuits we have the direct testimony of Theophrastus and Aristophanes. Flowers were always in great request among them. At convivial meetings, at public festivals, and in religious ceremonies, the presence of these was always required. To so great an extent was this use of flowers carried, that artists were established in Athens whose sole occupation it was to compose wreaths and crowns with flowers of different species, each of which was understood to convey some particular mythological idea.

The Romans, amid all their conquests, never forgot to forward the useful arts of life, but carried with them into other countries such as they already possessed, while they showed themselves to be willing learners of others which they found established and which were new to themselves. It is fortunate for the interests of humanity that the benefits which they thus became the means of disseminating were in their nature such as would soften and repair the miseries occasioned by the sword; and that these benefits have remained to bless the countries which their armies overran.

It may be supposed that an art which was capable of ministering so greatly to their personal gratification as that of vegetable gardening would not be neglected by the Romans. Columella has given a very considerable list of culinary plants which they possessed, and some of these must have been both excellent and plentiful, since he speaks of them as being esteemed both by slaves and kings.

The more luxurious among the Romans were accustomed to force vegetables, and the Emperor Tiberius is said to have been so fond of cucumbers that he secured by that means a supply for his table throughout the year.

The kitchen-gardens of the modern Italians contain nearly every vegetable that we possess; but their methods of cultivation are not such as to afford them in that degree of perfection in which we are accustomed to enjoy them, and to which the climate would seem qualified to bring them. The gardens of the peasants throughout the Italian states are but very scantily supplied, gourds and Indian corn comprising nearly all which they are made to contain. It is only in the gardens attached to religious houses that horticulture is pursued with any skill. In the labours of these the friars themselves are accustomed to assist, while in other situations in that country the office of a gardener is commonly filled by one who has had little or no instruction to fit him for the employment.

Gardens are found universally throughout the Netherlands, so that, to use the words of Sir W. Temple, "gardening has been the common favourite of public and private men;—a pleasure of the greatest, and a care of the meanest, and indeed an employment and a possession for which no man there is too high nor too low." There is not a cottage to be seen which has not a garden attached to it; and although this is sometimes exceedingly small, the high degree of culture which is bestowed upon it renders the spot available for the comfort of the cottager's family. Towards this desirable object every particle of matter capable of ameliorating the soil is carefully collected and applied. From these circumstances, it may be readily supposed that the Dutch are possessed of every fruit and esculent vegetable that their climate is capable of maturing.

In France, although gardens are not nearly so universal as in Holland, they are still very generally met with, their characteristic quality being that of neatness. This statement refers, however, more correctly to the northern than to the southern division of the kingdom, where the cottagers' gardens resemble much those of the Italian peasants, as well in their careless mode of culture as in the paucity of their contents. Nothing can be objected against the system pursued by the market gardeners who supply the French metropolis, and by whose skill and industry many vegetables are brought to a very luxuriant growth.

In the north of Europe gardening is in general a favourite pursuit, and the cottages of the peasants are for the most part provided with a spot of ground sufficient in extent to answer the demands of their inmates. This is not so much the case, however, in the Prussian dominions. Cabbages and potatoes form the greater part of the produce there obtained by the cottagers. The gardens of the higher classes are very differently managed, so as to produce vegetables in great variety and abundance.



Oenanthe crocata.

CENANTHE CROCATA.—HEMLOCK WATER-DROPWORT.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

FIG. (a) represents a floret of the circumference; (b) a floret of the disc.

CENANTHE CROCATA is decidedly one of the most active of our poisonous vegetables. When received into the stomach in any considerable quantity, it produces very violent effects on the nervous system, which speedily prove fatal. It is a tall umbelliferous plant, somewhat resembling Smallage, or Wild Celery, for which it has sometimes been mistaken. It is found growing on the sides of ditches, and on the borders of lakes and rivers, in many parts of Britain; flowering in July. It is particularly abundant on the banks of the Thames between Greenwich and Woolwich among the reeds, growing with *Apium graveolens*, and some other aquatics; about the Red-house, Battersea; in the Isle of Dogs, and other places near London. Dr. Milne found it in the marshes about Tunbridge; by the side of the Lewisham river, beyond the water-works; in the marshy meadows between South-end and Sydenham; and betwixt Loom-pit hill and Lewisham, on the left-hand in going from New-cross, near the bridge. It is very common in some of the northern counties, and we learn from Dr. Greville, in his "*Flora Edinensis*," that it grows on the bank of a river, at the beautiful village Lasswade, near Edinburgh.

The root is thick, white, fleshy, and divided into three or four small ramifications, somewhat resembling the common parsnip, for which it has sometimes been mistaken. The stem, which as well as the root contains a fetid, orange-coloured juice, is round, furrowed, hollow, much branched, and rises to the height of three or four feet. The form and colour of the leaves, and indeed the general appearance and habit of the plant, have a striking resemblance to the common garden parsley. The leaves are large, tri-quadrifid, smooth, of a deep green, with the leaflets wedge-shaped, mostly opposite, veined, irregularly cut, and sessile, or placed on very short stalks. The general umbels are large, terminal, many-rayed; the partial ones more numerous, and very short; the general, as well as partial involucre consist of many leaves, varying in number and form. The flowers are white, or pinkish, obcordate, numerous, slightly radiating; the outermost irregular and abortive, the innermost smaller, regular, and prolific: the filaments are thread-shaped, longer than the corolla, with roundish anthers: the germen is ovate, with a slender awl-shaped style, supporting a small obtuse stigma. The fruit is oblong, with five convex ridges, and crowned with the permanent limb of the calyx, and elongated spreading styles.

The scientific name *Cenanthe*, occurs in Theophrastus and Dioscorides, and is derived *ανη*, from, the vine, and *ανθος*, a flower. Tournefort first applied it to the present genus, because it blossoms at the same time as the vine, and because the flowers reminded him of the smell and colour of that plant. The trivial name *crocata* was given in consequence of the yellow juice which it yields.

Wepfer has confounded this plant with his *Cicuta aquatica*, and complains that Lobel has described the *Cicuta aquatica* under the name of *Cenanthe Cicute facie, succo viroso croceo*, nine years afterwards. In the *Ephemerides Naturæ Curiosorum*, he also asserts that Stalpart Van Der Wiel makes the same mistake; although from the descriptions of Lobel, which were very exact for the times he lived in, and from the plates of Stalpart, it is very evident that they were right. Hoffman also, in his *Medicin. Rational. Systematic*, tom. ii. p. 174. edit. 4to. makes no mention of the difference. His words are, "Ex vegetabilium regno inter præsentissima venena referri debeat cicuta vera, napellus sive aconitum cæruleum, solanum furiosum, hyosciamus, ac datura."

We have already observed, that both the colour and form of the leaves have a striking resemblance to parsley, and Johnson asserts, that either from ignorance, or a less excusable cause, the roots were in his time frequently sold for those of peony; and that the women likewise, who supply the apothecaries with herbs, vended this pernicious root under the name of Water Lovage. A man has lately been imposing on the inhabitants in the vicinity of town, by selling the roots for those of the beautiful Dahlia.

QUALITIES.—The root, in which the deleterious quality is most powerfully resident, contains a juice that is at first milky, and afterwards becomes yellow. It has an acrid, unpleasant taste, and fetid smell. The other parts of the plant also yield the same kind of juice; and Mr. Erhert, a botanical artist, asserted, that while drawing the plant, the smell from it rendered him so giddy, that he was several times obliged to quit the room, and walk in the air to recover himself: but that having opened the door and windows of the room, the free air enabled him to finish his work.

POISONOUS EFFECTS.—The *Œnanthe Crocata* appears to be the most virulent of the umbelliferous plants; for if admitted into the stomach in but a small quantity, it is instantly productive of the most violent effects: such as convulsions, frequent hiccough, ineffectual retchings, hæmorrhage from the ears, and other violent symptoms which terminate in death; and it is very evident, from the subjoined accounts, that “it exerts an energetic local irritation, and acts powerfully on the nervous system.”

“Eight young lads going a fishing to a brook near Clonmell, in Ireland, meeting with a parcel of Hemlock Dropwort, and mistaking their roots for those of Water Parsnep, ate a quantity of them. About four or five hours after, going home, the eldest, who was almost of man’s stature, without the least previous disorder, on a sudden fell down backwards, and lay sprawling upon the ground. His countenance soon turned very ghastly, and he foamed at the mouth. Soon after, four more were seized in the same manner, and they all died before morning. Of the other three, one became mad, but recovered his senses next day. Another lost his hair and nails; and the third escaped without receiving any harm—which perhaps might be occasioned by his speedy running two miles after he saw the first young man fall, together with his drinking a very large draught of milk warm from the cow, in the midway.”

“M. Charles was called in to attend a whole family who had eaten of the roots of *Œnanthe*. Momentary sensations of an acrid heat, determining to the head; a pungent burning in the epigastric region, and small rose-coloured spots of an irregular shape, extending successively; such were the symptoms produced by the poison. These spots, which did not exceed the level of the skin, first made their appearance on the face, then on the breast, and on the arms; the father alone had the belly swelled out like a balloon. Mucilaginous, and oily medicines, with milk, were successfully administered to them.

“Three French prisoners being in the fields near the town of Pembroke, dug up a large quantity of a plant (which they took to be *wild celery*) to eat with their bread and butter, for dinner. After washing it, while yet in the fields, they all three ate, or rather only tasted, of the roots.”

“As they were entering the town, one of them was seized with convulsions. The other two ran and sent a surgeon, who endeavoured first to bleed, and then vomit him, but in vain; and he died presently. Ignorant of the cause of their comrade’s death, and of their own danger, they gave of these roots to eight other prisoners, who all ate some of them with their dinner. A few minutes after, the two who gathered the plants were seized in the same manner as the first, of whom one died. The other was bled, and an emetic with great difficulty forced down, on account of his jaws being set. This operating he recovered; but was some time much affected with dizziness in his head, though not sick, nor in the least disordered in his stomach. The other eight being bled, immediately, were soon well.

“What they ate was *Œ. Aquatica cicutæ facie* of Lobelius, which grows in plenty all over the country, and is called by the inhabitants, five fingered root, and is much used by them for cataplasms for the felon, or worst kinds of whitlow. They ate only the root, and none of the leaves or stalks.”—*Gentleman’s Mag.* 1747. p. 321.”

“Stalpart Van Der Weil, in his Observations, takes notice of the deadly effects to two persons, who had eaten these roots, mistaking them for Macedonian parsley. Soon after eating the roots, they were troubled with violent heats in the throat and stomach. One of them bled at the nose; the other was violently convulsed. Both of them died; one in two hours, the other in three.”

“The dead bodies of three unfortunate Belgians, belonging to the 82nd Demi-brigade, were brought to the principal naval hospital at Brest. They had been deceived by the resemblance which the root of *Œnanthe crocata* bore to one made use of in their own country, and ate a great quantity of it. Its sweetish flavour pleased their palates, and contributed to the keeping up of their error. They very soon experienced a general uneasiness, nausea, vertigoes, &c. To these symptoms succeeded convulsions, and with such rapidity, that they sunk under them in less than half an hour, and before any assistance was given.”

MORBID APPEARANCE OF THESE MEN.—Nothing remarkable on the exterior surface of the body. One of these bodies was preserved for four days, and at the end of that time no sign of putrefaction was observed: the brain and its membranes were sound, the lungs distended; their vessels full of black and dissolved blood. In the bronchiæ, trachea, and mouth, was found a frothy and whitish fluid. The lungs in one of these bodies presented on their external surface some petechiæ; the cavities of the two circulatory systems empty; the heart sound. The stomach contracted, and inflamed at its extremity (pyloric?) and lesser curvature; its coats thickened; the intestines puffed up, and their vessels injected; the venous and arterial systems distended with a fluid of the same nature, dissolved and blackish: the derangements were precisely the same in all three.

Further accounts of this dreadful poison may be found in Vanderviel’s *Observationum Pariorum*, &c. tom. 1, p. 182. In the *Philosophical Transactions*, p. 836, Anno 1758. In Dr. Allan’s *Synopsis Medicinæ*; and Boerhaave’s *Historia Plantarum*; *Lug. Bat.* p. 79.

USES.—Few practitioners now venture to prescribe this plant; but is said that an infusion of the leaves, or three tea-spoonsful of the juice have been successfully administered for some obstinate cutaneous diseases. In Westmoreland, the country people apply a cataplasm of the herb to the ulcer which forms in the fore part of the hoof in horned cattle, and is called “*foul*.” It sometimes proves diuretic; but its real powers as a remedial agent, are as yet imperfectly understood.



Origanum vulgare

ORIGANUM VULGARE.—COMMON MARJORAM.

CLASS XIX. DIDYNAMIA.—ORDER I. GYMNOSPERMIA.

NATURAL ORDER, LABIATÆ.—THE MINT TRIBE.

FIG. (a) represents a flower magnified; (b) view of the corolla, with the stamens, &c.; (c) the germen and style; (d) stamen and anther.

THE Common Marjoram is a perennial plant, a native of Europe, growing on dry gravelly hills. With us it chiefly occurs in thickets, on chalk or limestone; flowering in July and August.

From a brownish, creeping, fibrous root-stake arise several erect, leafy, angular, purplish stems, about a foot high, clothed with short recurved hairs, and branched and paniced at the summit. The leaves are deflexed, ovate, pointed, dark green, entire, or slightly serrated, minutely fringed, petioled, and grow in pairs at the joints. The flowers are in dense, convex, terminal panicles, of a light purple or rose colour, and furnished with numerous ovate, sessile bractes, one under each flower, rather longer than the Calyx. The calyx is tubular, five toothed; like the leaves covered with resinous dots, and fringed at the mouth with dense, very conspicuous white hairs. The corolla is funnel-shaped, with the upper lip erect, nearly flat, bifid, and obtuse; the under in three deep, spreading, nearly equal lobes. The filaments are four, thread-shaped, two longer than the corolla, supporting ovate two-lobed anthers. The style, which is filiform, with a bifid reflexed stigma, rises from a four-lobed germen. The nuts are four, ovate, and lodged in the bottom of the calyx.

About eighteen species of this genus, natives of various countries, have been described, and of these the sorts usually cultivated are the common marjoram, *Origanum vulgare*; the pot marjoram, *O. Onites*; the sweet marjoram, *O. Marjorana*; the winter sweet marjoram, *O. heracleoticum*; very much resembling the above species in appearance; but it is of a more aromatic flavour, and is always used in preference. It is indigenous to Greece whence it was introduced into this country in 1640; A sheltered dry situation is most favourable to its growth; the Egyptian marjoram, *O. aegyptiacum*; and the dittany of Crete or Candia, *O. Dictamnus*. Of the first there are varieties, with white flowers, and pale green stalks, with purple flowers and white variegated leaves, which is sometimes cultivated under the title of *pot marjoram*. The fourth sort is at present commonly known by the name of *winter sweet marjoram*, but was formerly called *pot marjoram*, and is chiefly used for nosegays. The leaves resemble those of common sweet marjoram, but the flowers are produced in spikes. The *Origanum Creticum* is the Wild Origanum, or Marjoram of Dioscorides and the modern Greeks. It has much the habit of the common Marjoram of Britain, but the thin slender spikes distinguish it both from that and the *O. smyrnæum*, or Smyrna Marjoram.

QUALITIES.—The leaves and flowering tops of this plant have an agreeable odour, and a warm pungent taste which reside in an essential oil.

MEDICAL PROPERTIES AND USES.—This plant resembles Wild Thyme, both in its sensible qualities and medicinal properties, and may be used for the same purposes. Its effects are those of a mild stimulant and carminative; and it was formerly held in high estimation as an emenagogue; but it is now fallen into disuse. The essential oil is sometimes applied to carious teeth on a dossil of lint or cotton, to relieve the pain of tooth-ache. The leaves when dried are used instead of tea, and are said to be exceedingly grateful; and the powder enters as an ingredient into the composition of some cephalic snuffs. For internal use, half an ounce of the leaves are infused in a pint of boiling water, and drank at intervals, or ℞j. of the powder may be taken twice or thrice a day.

ORIGANUM MAJORANA.—Sweet Knotted Marjoram. This plant, which, like the common marjoram, has long been admitted into the British pharmacopœias, is a native of Portugal and Syria. It is supposed to be the *Amaracus* of the ancients, and is said to have been introduced into this country about the year 1573.

* See Philips's History of Cultivated Vegetables.

The stems are numerous, woody, branching and rising more than a foot high; the leaves are ovate and obtuse, entire, petiolate, and downy. The flowers are usually white, with numerous bractes, and are collected into small roundish heads; from which last circumstance it is called knotted marjoram. The calyx is tubular, with five acute teeth. The corolla is funnel-shaped, with the upper lip erect and roundish, and the under divided into three acute teeth. The flowers appear in July. When it is cut and dried for winter use; it must be renewed by seeds annually, for which purpose the seed is imported from France and Italy into England.

QUALITIES.—The leaves and tops have an agreeable aromatic odour, and a moderately warm, bitterish taste. In distillation with water, they yield a considerable quantity of essential oil, amounting, according to Baumé, to 3 xvi. from 150lbs. of the plant. This on being long kept assumes a solid form.

MEDICAL PROPERTIES AND USES.—Sweet marjoram is aromatic and tonic, its virtues residing in its essential oil. It is seldom used medicinally; but is a good deal employed for culinary purposes to give relish to soups, omelets, stuffings, &c. The powder of the dried herb is sternutatory, and like the common marjoram enters as an ingredient into the composition of some cephalic snuffs. Murray, in his *Apparatus Medicaminum*, speaking of this plant, says, “*Tumores mammarum dolentes, scirrhosos, herba recens, viridis, per tempus applicata, feliciter dissipavit.*”

The Germans retain many of the annual customs peculiar to themselves before the Roman conquest. Whether a ceremony described in the “*Athenæum*,” as having been observed in Germany of late years, is derived from the victors, or from the ancient nations, is not worth discussing.

The approach of spring was there commemorated with an abundance of display, its allegorical character was its most remarkable feature. It was called *Der Sommers-gewinn*, the acquisition of summer; and about forty years ago was celebrated at the beginning of spring by the inhabitants of Eisenach, in Saxony, who, for that purpose, divided themselves into two parties. One party carried *winter* under the shape of a man covered with straw, out of the town, and then, as it were, sent him into public exile; whilst the other party, at a distance from the town, decked *spring*, or, as it was vulgarly called, summer, in the form of youth, with boughs of cypress and May, and marched in solemn array to meet their comrades, the jocund executioners of winter. In the meanwhile national ballads, celebrating the delights of spring and summer, filled the skies; processions paraded the meadows and fields, loudly imploring the blessings of a prolific summer; and the jovial merry-makers then brought the victor-god home in triumph. In the course of time, however, this ceremonial underwent various alterations. The parts, before personified, were now performed by real *dramatis personæ*; one arrayed as spring, and another as winter, entertained the spectators with a combat, wherein winter was ultimately vanquished and stripped of his emblematical attire; spring, on the contrary, being hailed as victor, was led in triumph, amidst the loud acclamations of the multitude, into the town. From this festival originated a popular ballad, composed of stanzas each of which conclude thus:

Heigho! heigho! heigho! Summer is at hand?
 Winter has lost the game,
 Summer maintain'd his fame;
 Heigho! heigho! heigho! Summer is at hand.

The day whereon the jubilee takes place is denominated *der Todten sonntag*, the dead Sunday. The reason may be traced perhaps to the analogy which winter bears to the sleep of death, when the vital powers of nature are suspended. The conjecture is strengthened by this distich in the ballad before quoted:

Now we've vanquish'd <i>Death</i> ,		Were <i>Death</i> still unsubdued,
And Summer's return ensured:		How much had we endured!

But of late years the spirit of this festival has disappeared. Lately, winter was uncouthly shaped of wood, and being covered with straw, was nailed against a large wheel, and the straw being set on fire, the apparatus was rolled down a steep hill! Agreeably to the intention of its inventors, the blazing wheel was by degrees knocked to pieces, against the precipices below, and then—winter's effigy, to the admiration of the multitude, split into a thousand fiery fragments. This custom too, merely from the danger attending it, quickly fell into disuse; but still a shadow of the original festivity, which it was meant to commemorate, is preserved amongst the people of Eisenach. “Although” says the writer of these particulars, “we find winter no longer sent into banishment, as in former times, yet an attempt is made to represent and conciliate spring by offerings of nosegays and sprays of evergreen, adorned with birds or eggs, emblematical of the season.” Probably the latter usages may not have been consequent upon the decline of the former, but were coeval in their origin, and are the only remains of ancient customs peculiar to the season.



Narcissus Moschatus.

NARCISSUS MOSCHATUS.—THE LONG-FLOWERED DAFFODIL.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, AMARYLLIDÆ.—THE NARCISSUS TRIBE.

CALYX none. Petals six, egg-shaped, pointed, flat, attached to the outside of the tube of the nectary, above the base. Nectary of one leaf, cylindrical below, funnel-shaped above, with a coloured border. Filaments awl-shaped, attached to the tube of the nectary, short. Anthers linear. Germen inferior, roundish, with three blunt corners. Style thread-shaped, triangular, longer than the stamens. Stigma three-cleft. Capsule roundish, with three blunt corners, three-celled, three-valved. Seeds numerous, globular.

SPECIFIC CHARACTER AND SYNONYMS. *Narcissus moschatus* (staminibus æqualibus a fundo tubi liberis porrecto-conniventibus) foliis loratis concavis cæsiis; flore solitario subcænuo; tubo turbinato brevi longitudine pedunculi cum germine; laciniis lanceolato oblongis obliquis; corona recto cylindrica, vertititer subplicatorugosa; iisdem longiore, sursum parum ampliata.

In species evidently taken up from figures, often defective, in which distinct ones have been confounded together as synonymous to each other, then trusted to the mercy of a short phrase by way of description, it is not a very easy thing to say for certain which were the precise plants intended by the author as his standards. Such seems to be the case in the present instance; for this is certainly one of the plants called in by Linnæus to his *moschatus*; but whether some other of his synonyms may not be the plant intended, we are at a loss to say. Is this species really distinct from *bicolor*? Are the synonyms added as varieties really plants of the same species? we have not yet met with more than this one of them in our collections. *Moschatus* has escaped the *Hortus Kewensis* nor have we ever seen a figure of it in any recent work. Differs from *bicolor* in having a crown more truly cylindric less cleft and not so widely or far patent; from both that *Pseudo Narcissus*, by its drooping flower, and from the latter by its longer crown and stamens reaching only to about the middle of that; from both again in colour and scent. The pedicel is curved and enveloped by the spathe. We suppose it has received its name from some of the varieties having been described by the old Botanists as possessing flowers "*cum moscari odore*."

This has little scent of any sort; but what it has is pleasant, somewhat like ginger, and not in the least resembling musk. Blooms early in April. Hardy.*

NARCISSUS. Named from the youth Narcissus, who, as the poets tell us, was changed into this flower. Also named Daffodil. Some of the species are called Jonquils.—*French*, narcisses, jonquille. *Italian*, narcisso, giunchiglia.

THE Two-flowered Narcissus,† Pale Daffodil, or Primrose-peerless, is of a pale cream-colour, with a yellow cup in the centre. It grows wild in England and many other parts of Europe, and flowers in April.

Of the Common Daffodil there are many varieties: with a white flower, and yellow cup; a yellow flower, and deep golden cup; a double flower, with several cups, one within the other; Tradescant's Daffodil, "which," says Mr. Martyn, "may well be entitled the Prince or Glory of Daffodils;" the Great Nonsuch; the Great Yellow Incomparable Daffodil, which, when double, is called by gardeners, Butter-and-egg Narcissus. It is called in the Dutch catalogues the Orange Phoenix, and is considered the handsomest of all the varieties. There are many others, which it is not necessary to specify. They mostly flower in April. This in France has many names: as, *le narcisses sawage*; *le faux narcisses*; *campane jaune* [yellow bell]; *aiaia*; *aioult*. In Italian, *narcisso giallo* [yellow narcissus], *trombone giallo* [yellow trumpet].

The Sweet-scented Narcissus, or Great Jonquil, is a native of the South of Europe. Most of the species are fragrant; but this is the most powerful, and is often found too much so to be endured in a room.

The Polyanthus Narcissus called in France *le narcisses de Constantinople*; in Languedoc *pissauleich*: in Italy, *tazzetta*‡ grows naturally in the East, and in many parts of Europe. There are more varieties of this than of any other species. That which is generally called the Cyprus Narcissus, with very double flowers, the outer petals white, the inner, some white and some orange, is the most beautiful of them all, and the most esteemed for hanging in glasses in a room. Its scent is very agreeable, and less powerful than that of the Jonquil.

The White, or Poetical Narcissus, called by the French *janette des contours* has a snow-white flower,

* Curtis's Botanical Magazine.

† Italian, tazzettaccia.

‡ Tazzetta signifies a little cup; tazzettone, and tazzettaccia, imply a cup of a larger size.

with a yellow cup in the centre, fringed on the border with a circle of bright purple. It is sweet-scented, a native of many parts of Europe, and flowers in May. There is a variety with double flowers.

There is a species of Narcissus which is called the Late-flowering, and does not blow till autumn. The Common Jonquil is altogether yellow, as is also the Sweet-scented; but the latter has the cup somewhat deeper coloured than the petals.

The preferable kinds are the Polyanthus Narcissus, the Jonquil, and the Poetical Narcissus; but any of them may be blown, either in glasses or pots, without difficulty, and may be readily increased by offsets.

Although it has been observed that most of these flowers blow in April and May, this only applies to such as are left in the earth to blow at their own season; but, according to their time of planting and their situation, they may be continued for many months in succession. Those planted in pots should be covered an inch over the top of the bulb; and the pot should not be less than seven inches in depth. According to the size of the bulb, one or more may be planted in each pot. They may be planted any time from September to February. Careful admissions of air in mild weather will be beneficial; and they must on no account be denied the enjoyment of daylight and sunshine, towards which they will lean with an almost animal yearning, which it were a sort of cruelty not to indulge.

Water must not be given them until the green begins to appear: they should then be gently watered once or twice a week. In a warm inhabited room they may be blown even in the midst of winter.

The leaves, such as are blown in glasses, should never be plucked off before they decay, or the root will be thereby deprived of much of its natural nourishment. When they have decayed, the bulbs should be taken up, laid in the shade to dry, cleaned, and put in a dry secure place till wanted to replant. The offsets should be taken off, and sorted according to their size. When planted, they may be put two or three together, until they have grown large enough for flowering.

When the plants are somewhat advanced in height they will require a stick to support them. Such plants as are kept in the open air in the spring must be defended from strong winds, which would otherwise be apt to break the stems, particularly after rains; when their cups, being filled with water, will be more heavy:

"All as a lily pressed with heavy rain,
Which fills her cups with showers up to the brinks.
The weary stalk no longer can sustain
The head, but low beneath the burden sinks."

P. FLETCHER.

They will thrive best in a south-eastern exposure, when the morning sun may dry off the moisture which has lodged upon them during the night; and they will better preserve their beauty there than in the shade, or in the scorching heat of the afternoon sun.

Armstrong notices the destructive effect of the easterly winds upon the Narcissus: in common indeed with all other flowers, for those must be very hardy that can bear an exposure to them without injury:

"As when the chilling east invades the spring,
The delicate narcissus pines away
In hectic languor, and a slow disease
Taints all the family of flowers, condemned
To cruel heavens."

The poetical origin of this flower, and its own beauty, have conspired to obtain for it the notice of some of the greatest poets. The story told at length in Ovid's *Metamorphoses*, of the transformation of Narcissus into a flower, is too well known to need insertion.

The Naiades, lamenting the death of Narcissus, prepare a funeral pile, but his body is missing:

"Instead whereof a yellow flower was found,
With tufts of white about the button crown'd."

SANDYS'S OVID.

"What first inspired a bard of old to sing
Narcissus pining o'er the untainted spring?
In some delicious ramble he had found
A little space, with boughs all woven round;
And in the midst thereof a clearer pool
Than e'er reflected in its pleasant cool
The blue sky here and there serenely peeping
Through tendril wreaths fantastically creeping.
And on the bank a lonely flower he spied,

A meek and forlorn flower with nought of pride,
Drooping its beauty o'er the watery clearness,
To woo its own sad image into nearness.
Deaf to light Zephyrus, it would not move;
But still would seem to droop, to pine, to love
So, while the poet stood in this sweet spot,
Some fainter gleamings o'er his fancy shot;
Nor was it long ere he had told the tale
Of young Narcissus, and sad Echo's bale."

KEATS.

The scent of the Narcissus is generally considered very unwholesome, and the ancients devoted it to the Furies, who were said to torment their sufferers by its stupefying powers.



Ruffelia juncea

RUSSELIA JUNCEA.—RUSHY RUSSELIA.

CLASS XIV. DIDYNAMIA.—ORDER II. ANGIOSPERMIA.

NATURAL ORDER, SCROPHULARINACEÆ.—THE FIG-WORT TRIBE.

CHARACTER OF THE GENUS, RUSSELIA. Calyx five parted, segments acuminate subulate, nearly equal. Corolla hypogynous, tubular, ventricosely-widening towards the summit, throat bearded, limb two-lipped, upper lip emarginately two-lobed, lower lip three-parted, segments nearly equal. Stamens four, inserted into the tube of the corolla, didynamous, included, deflexed; anthers two-celled, cells diverging. Ovary two-celled, the placenta inserted on each side of the dissepiment, bearing numerous ovules. Style simple; stigma obtuse. Capsule subglobose, attenuately beaked, two-celled, splitting by a septical dehiscence into two valves; valves bifid, the placenta at first cohering, ultimately free. Seeds numerous, very small, winged.

DESCRIPTION OF THE SPECIES, RUSSELIA JUNCEA. Stem about three feet high, angular, green, dividing into numerous very slender tetragonal branches of a pale green colour, the young ones nearly devoid of leaves, nodding. Leaves always small, often very minute, larger however than the very slender branches, petiolate, ovate, acute, most delicately serrate or ciliate at the margin, sometimes furnished with one or two teeth. Inflorescence apparently paniced, but in reality consisting of the extreme slender branches, distant from each other, but disposed in the fashion of a raceme, at the points of which one or two stalked and nodding flowers are placed. Calyx small, sepals five, ovate, acute, imbricating. Corolla crimson, tubulose, about an inch long, dilating towards the upper part, limb somewhat unequally five-cleft; segments obtuse, the two superior rather approximating. Stamens four, didynamous. Anthers smooth, oblong, apiculate, lobes parallel. Stigma two-lobed; lobes oblong, flat.

POPULAR AND GEOGRAPHICAL NOTICE. The species as yet known to belong to this small genus, are herbaceous or shrubby plants natives of the Antilles and of Mexico. The present species is the produce of Mexico; and few plants introduced of late years surpass it in the beauty of the flowers, or the delicacy, grace, and singularity of its branches. The elegant green pendulous branches terminated by the rich crimson flowers, at once charm the eye, and excite an interest by causing us to consider how such thread-like organs and the minute leaves attached to them, can accomplish the elaboration of sufficient sap to nourish and perfect the fruit with its multitude of seeds. This is the more remarkable when we reflect that in the same country grows the Agave Mexicana, with its large, thick, and enduring leaves, which need several years before they can elaborate sufficient sap to enable it to elevate its flower stem with its countless flowers. These contrasts testify the boundless power of the Sovereign Creator, and the contemplation of them prompts us to exclaim with our great poet,

“These are thy glorious works, Parent of good,
Almighty, thine this universal frame,
Thus wondrous fair, thyself how wondrous then!
Unspeakable, who sit’st above these heavens
To us invisible, or dimly seen
In these thy lowest works; yet these declare
Thy goodness beyond thought, and power divine.”

INTRODUCTION; WHERE GROWN; CULTURE. Sent from Mexico by Count Karwinski to Berlin and and Munich, whence it was introduced into Britain in 1833.

It requires the protection of the greenhouse, and flourishes well in any light rich soil. It is easily propagated by cuttings. It flowers freely in July and August.

DERIVATION OF THE NAMES. *Russelia*, in compliment to Dr. Alexander Russell, an English physician who spent some time at Aleppo, and wrote an account of the Natural History of that place. *Juncea* from *juncus*, a rush, from the rush-like character of the branches.*

Yesterday I had the pleasure to dine with a very amiable and worthy friend at his villa a few miles distant from town; and while the company were high in mirth over the afternoon’s bottle, slipped aside to enjoy half an hour’s sober thought and salutary air. An almond-tree, in the centre of the garden, presented an immense tuft of flowers covering its whole surface. Such a glow of floral beauty would at any time have been an object of admiration; but at a season when every thing else is dead, when not a leaf appears on any of the vegetable tribe besides, and the adjacent trees are bare skeletons, it claimed a peculiar share of attention.

* The Botanist.

An inquisitive eye loves to pry into the inmost recesses of objects, and seldom fails of a reward more than proportioned to the trouble of the research. Every one must have observed, that in all flowers there is an apparatus in the centre, different from the leafy structure of the verge, which is what strikes the eye at first sight; the threads which support the yellow heads in the centre of the rose, and those which serve as pedestals to the less numerous, but larger, dusky black ones in the tulip, are of this kind. Formerly, these were esteemed no more than casual particles, or the effect of a luxuriance from an abundant share of nourishment sent up to the leaves of the flower, throwing itself into these uncertain forms, as they were then esteemed. But science disclaims the supposition of nature's having made any thing, even the slightest particle of the meanest herb, in vain; and, proceeding on this hypothesis, has discovered that the gaudy leaves which were, at one time, supposed to constitute the essence of the flower, are merely a defence to the thready matter within; which, despised as it used to be, is indeed the most essential part of the whole—is that for which almost the whole has been formed, and that alone on which the continuation of the species depends. It has been found that, of the minutest threads in this little tuft, there is not one but has a destined office, not one but joins in the common service; and that, though so numerous and apparently indefinite, every single flower on the whole tree has precisely the same number to the utmost exactness, and precisely in the same situation. Nor is it credible that there ever has been, or ever will be, through successive ages, a tree of the same kind every single flower of which will not be formed with the same perfect regularity.

In the beautiful Almond-tree before me I saw a confirmation of this accurate exactness in the care of providence. Not a flower of the millions that crowded upon the sight in every part but contained the precise number of thirty little threads; and not one of these threads but had its regularly-figured head placed in the same direction on its summit, and filled with a waxy dust, destined for impregnating the already teeming fruit. The fruit showed its downy rudiments in the centre, and sent up a peculiar organ to the height of these heads, to receive the fertilising dust when the heads should burst, and convey it to the very centre of the embryo fruit.

Such is the economy of nature in the production of these treasures; but she has usually more purposes than one to answer in the same subject. It was easy to conceive, that one of all these little receptacles of dust might have contained enough of it to impregnate the kernel of a single fruit, for each flower produces no more. Yet, surely, twenty-nine in thirty had not been created in vain. It was not long before the mystery was explained to me.

The sun shining with unusual warmth, for the season, led forth a bee from a neighbouring hive, who directed her course immediately to this source of plenty. The little creature first settled on the top of one of the branches; and, for a moment, seemed to enjoy the scene as I did. She just gave me time to admire her sleek, silky coat, and glossy wings, before she plunged into a full blown blossom, and buried herself among the thready honors of the centre. Here she wanted and rolled herself about, as if in ecstasy, a considerable time. Her motions greatly disconcerted the apparatus of the flower; the ripe heads of the thready filaments all burst, and shed a subtle yellow powder over the whole surface of the leaves, nor did she cease from her gambols while one of them remained whole, or with any appearance of the dust in its cavity.

Tired with enjoyment, she now walked out, and appeared to have paid for the mischief she had done at the expence of strangely defiling her own downy coat. Though some of the dust from the little capsules had been spread over the surface of the flower, the far greater part of it had evidently fallen upon her own back, and been retained there among the shag of its covering.

She now stationed herself on the summit of a little twig, and began to clear her body of the newly gathered dust, and it was not half a minute before her whole coat was as clean glossy as at first: yet it was most singular not a particle of the dust had fallen upon any of the flowers about her, where it must have been visible as easily as on the surface of that it was taken from.

A very labored motion of the fore legs of the bee attracted my eye, and the whole business was then immediately explained; I found she had carefully brought together every particle that she had wiped off from her body, and formed it into a mass, which she was now moulding into a firmer texture, and which she soon after delivered to the next leg, and from that, after a little moulding more, to the hinder one, where she lodged it in a round lump in a part destined to receive it; and, having thus finished her operation, took wing for the hive with her load.

It was now evident, that what had seemed sport and pastime was business to the insect; that its rolling itself about was with intent to dislodge this yellow dust from the little cases that contained it; and that this powder, the abundance of which it was easy to perceive could not be created for the service of the plant, was destined to furnish the bee with wax to make its combs, and to serve us for a thousand purposes afterwards.

The return of this single insect to the hive sent out a legion upon the same expedition. The tree was in an instant covered as thick almost with bees as with flowers. All these employed themselves exactly as the first had done, except that some forced themselves into flowers scarcely opened, in which the reservoirs of this waxy powder were not ripe for bursting. I saw them bite open successively every one of the thirty heads in the flower, and, scooping out the contents, add them to the increasing ball that was to be carried home upon the thigh.



Polygala Senega

POLYGALA SENECA.—RATTLE-SNAKE MILKWORT.

CLASS XVII. DIADELPHIA.—ORDER III. OCTANDRIA.

NATURAL ORDER, POLYGALACEÆ.—THE MILKWORT TRIBE.

FIG. (a) represents the three smaller leaves of the calyx; (b) the different parts of the corolla, &c.; (c) the capsule and seeds; (d) the root.

THE *Polygala Senega* is a hardy perennial, a native of North America, growing in most latitudes in the United States, on the sides of hills and in dry woods. It is abundant in Kentucky, Ohio, and Tennessee; flowering from June to August. It was first cultivated in England by Philip Miller in 1759; but having little beauty to boast it is rarely met with in our gardens. There is a variety with whitish flowers in a dense spike or cluster, and another with rose-coloured flowers in a lax spike and narrower leaves. The rose-coloured variety, as it has been considered by Michaux and Pursh, is said to be a distinct species. Some varieties, which Professor Bigelow possesses from Carolina, have branching, pubescent stems, and very long loose spikes. Of this genus M. Decandolle enumerates above one hundred and sixty species, growing in every quarter of the globe; but one only, *Polygala vulgaris*, or common Milkwort, is British.

The root of *Polygala Senega* is woody, branched, contorted, about half an inch in diameter, and covered with a thick dull yellowish or greyish bark; it sends up several annual stems, about a foot in height, erect, slender, round, simple, smooth, of a dull purple colour below, and greenish towards the top. The leaves are alternate, scattered, lanceolate, pointed, smooth, somewhat undulated, occasionally tinged with red, and nearly or quite sessile: towards the base they are smaller and nearly ovate. The flowers are in loose, terminal spikes, apparently papilionaceous, generally white, often tinged with purple, and sometimes pale yellow. The calyx, which in this genus is the most conspicuous part of the flower, consists of five leaflets; the two largest of which are roundish-ovate, white, and slight veined. The corolla is small, closed, having two obtuse lateral segments, and a short crested extremity. The stamens are all united at the bottom, and attached to the corolla; with eight tubular anthers opening at the summit. The fruit is an obcordate, compressed, 2-celled, 2-valved capsule, containing two oblong-obovate, slightly hairy, curved, blackish seeds. The spike opens very gradually, so that the lower flowers are in fruit, while the upper ones are in blossom.

The generic name is compounded of two Greek words, *πολύς*, *much*, and *γάλα*, *milk*, in allusion to its reputation of increasing the secretion of milk in those animals that partake of it. But at this time, the species which gave origin to the idea is not known.

QUALITIES AND CHEMICAL PROPERTIES.—The root of the *Polygala Senega* has little or no smell; but to the taste it is bitter, pungent, subtle, and peculiar. After chewing, it leaves a sensation of acrimony in the mouth, and still more so in the fauces, if it have been swallowed. Both aqueous and spirituous menstrua extract its virtue; but the alcoholic most completely. The powder in substance is, however, more active than either the tincture or decoction. The bark of the root contains the most active principles of the plant: the ligneous portion being comparatively inert. Alcohol dissolves a substance apparently of the resinous kind, giving a precipitate when water is added. Iron produces little change in solution of this root, and gelatin occasions no alteration whatever.

A peculiar vegetable principle has recently been discovered by Gehlen, in the root of the *Polygala Senega*, to which he has given the name of *senegin*. It is obtained by treating the alcoholic extract with water and ether; the latter abstracting a portion of resin, and the former dissolving a little mucilaginous and saccharine matter. It is a solid substance of a brown colour, and excites violent sneezing like tobacco. It has a disagreeable taste, is soluble in alcohol, but insoluble in water and ether.

M. Reschier is also said to have isolated from six ounces of the root of *Senega*, a hundred grains of a peculiar alkaline principle, '*Polygaline*,' which is united to an acid termed '*Polygalinique*.' It is regarded as a substance *sui generis*, and as containing the active principle of the plant; but we know not whether it be identical with the *senegin* of Gehlen.

MEDICAL PROPERTIES.—This root is sudorific and expectorant in small doses, and emetic and cathartic in larger ones. More than ninety years have elapsed since Dr. Tennant, of America, invited the attention of physicians to this medicine as an antidote to the bite of the rattle-snake; and a reward was voted him by the legislature of Pennsylvania for the promulgation of this supposed property. It was from

the Senegaroos, a tribe of Indians, that they obtained a knowledge of this their secret remedy; which they applied externally and internally. Dr. Tennant himself saw, or thought he saw, beneficial effects ensue; but when we consider the number of cases of recovery from the bite of this serpent, under every variety of treatment, as recorded in many American publications, we naturally infer that spontaneous recoveries are perhaps as frequent as those which are promoted by medicine.

More certain success appears to attend the use of Senega in pneumonia and some diseases related to it. In the advanced stages of pneumonic inflammation, after venesection and the other usual remedies have been carried to their proper extent, and the cough still remains dry and painful, the debility of the patient forbidding further depletion, it is said to afford very marked relief by promoting expectoration and relieving the tightness and oppression of the chest. Various medical writers have spoken favourably of its employment in these cases, amongst whom are Bigelow, Bouvart, De Jussieu, and Lemory.

Benefit has been derived in asthma from the use of the plant. "Decoction of Seneka," says Dr. Bree, is eminently useful in the first species, administered to old people; but in the paroxysms of young persons I have found it too irritating. This distinction applies to convulsive asthma purely uncomplicated, but the disease is frequently observed in middle-aged and elderly persons to take the character of *peripneumonia notha* in the winter and spring, and seneka is then the most useful medicine that I have tried. In such cases it should be united with the acetated ammonia, during the febrile state, and as this state gives way, the addition of squill and camphorated tincture of opium will be found to promote expectoration, perspiration, &c.

Sir Francis Millman, Dr. Percival, and others, have spoken highly of it as a diuretic in dropsies; and in consequence of its well ascertained power of exciting salivation, it was introduced into notice by Dr. Archer of Maryland, as a remedy of great power in croup. In the early stages of this complaint, however, it may be questioned, as Professor Bigelow justly observes, how far a medicine, which acts as a stimulant to the fauces and neighbouring organs, is entitled to reliance in a local inflammation of the trachea. Dr. Barton and other celebrated medical practitioners in America, place great reliance on it as an auxiliary to the other remedies that are usually employed in croup; and a series of well-conducted experiments by any able man in our country, to ascertain its real merits in this disease, would be a boon gratefully received by the profession. Dr. Archer's mode of administering it is, to give a tea-spoonful of a strong decoction once or twice in the hour, according to the urgency of the symptoms; and during the intervals, a few drops occasionally, to keep up a sensible action upon the mouth and throat, until it acts as an emetic or cathartic. In consequence also of its universally stimulant and diaphoretic effects, it has been found a powerful remedy in the treatment of chronic rheumatism.

Dose.—In powder, from twenty to thirty grains.

DECOCTUM SENEGÆ. L.E.

"Take of the root, *one ounce*, water, *two pints*. Boil down to a pint and strain." Dose, one to three ounces three or four times a day.

Beautiful!
How beautiful is all this visible world!
How glorious in its action and itself;
But we, who name ourselves its sovereigns, we,
Half dust, half deity, alike unfit
To sink or soar, with our mix'd essence make

A conflict of its elements, and breathe
The breath of degradation and of pride,
Contending with low wants and lofty will
Till our mortality predominates,
And men are—what they name not to themselves,
And trust not to each other.—Byron.

SEASONABLE DESIRES. With the incoming of spring there is an outgoing from town, or a wish to do so. We all love what nature proffers to our enjoyment. Now—the humble tenant of the lofty attic in the metropolis, cultivates a few flowers in garden pots, within the ridge of the parapet that bounds the eye from all things but sky and clouds; and when he can, walks with his wife in search of fields where grass grows and cattle feed. Now—the better conditioned take a trip a few miles beyond the suburbs, and all manifest hopes or wishes for prolonged enjoyment of the country in the approaching summer. Now—ready furnished cottages and lodgings, which have been "to let" throughout the winter in the villages near the metropolis, find admirers, and some of them find occupiers. Now—the good wife reminds her good man—"My dear it's very hard, after so many years not to be able to afford a little comfort at last—we can't, you know, live in this way for ever. What a charming day this is. Let us see and get a little place a little way from town against the fine weather comes; the walk there and back will do *you* good; it will do us *all* good; and the expense won't be miss'd in the long run." Now the thoughtful and thrifty, and the unthoughtful and the unthrifty, of certain and uncertain income, begin to plan or scheme where to go "after parliament's up," or in what neighbourhood, or on what site, to hire or build a house suitable to their real or imaginary wants. Now, in other words, "all the world" in London is thinking how or where "to go out of town bye-and-bye."



Bignonia Radicans.

BIGNONIA RADICANS.—ASH-LEAVED TRUMPET FLOWER.

CLASS XIV. DIDYNAMIA.—ORDER II. ANGIOSPERMIA.

NATURAL ORDER, BIGNONIACEÆ.—THE TRUMPET-FLOWER TRIBE.

FIG. (a) part of the corolla removed, showing the position of the stamens with the barren filament; (b) pistil.

BIGNONIA; so named by Tournefort in compliment to Abbé Bignon, librarian to Louis XIV.

Perianth one-leaved, erect, cup-form, five-cleft. Monopetalous, campanulate. Tube very small, the length of the calyx. Throat very long, ventricose beneath, oblong-campanulate. Border five-parted, the two upper divisions reflex, lower patulous. Filaments four, subulate, shorter than the corolla; two longer than the other two. Anthers reflex, oblong, as it were doubled. Germ. oblong. Style filiform, situation and form of the stamens. Stigma capitate. Silique two-celled, two-valved; partition membranaceous, parallel, thickened at the sutures. Seeds very many, imbricate, compressed; membrane winged on both sides. Leaves pinnate; leaflets gashed. Stem with rooting joints. Branches long and pliant, putting out fibres at their joints for the purpose of attaching themselves to whatever they are growing upon. Leaves opposite at every joint. Leaflets in four pairs, terminating by an odd one; they are serrate, and end in a long sharp point. The flowers are produced at the end of the shoots of the same year, in large bunches; they have long swelling tubes shaped somewhat like a trumpet, whence this plant has the appellation of Trumpet-flower. The corolla is orange.

This climbing shrub possesses peculiar attractions. The splendour of the large and numerous panicles of flowers of various shades of pink and orange with which it is adorned during the month of August, is sufficient to call forth the admiration of the lover of the flower-garden. The luxuriant growth of its branches will be found serviceable for the purpose of obscuring offensive walls, particularly if intermixed with climbing evergreens; the flowers of many of which, being much less showy, are nearly lost at the height to which these plants are at times required to be trained. The splendid flowers of the *B. radicans* will therefore enhance the value of such collections of climbers; and the flowers of each shrub will add materially to the delicacy, beauty, and brilliancy of each other.

This shrub is a native of North America, and was introduced in 1640. It is hardy, and may be propagated by layers or by pieces of the root: these should be put in about the beginning of April. The roots should be kept in pots for one year, when they may be planted out. A light sandy earth will be found most congenial to the growth of this shrub, which should be planted against a south or south-east wall.

May, says a popular Author, or the time of the year analogous to it, in different countries, is more or less a holiday in all parts of the civilized world, and has been such from time immemorial. Nothing but the most artificial state of life can extinguish, or suspend it: it is always ready to return with the love of nature. Hence the vernal holidays of the Greeks and Romans, their songs of the swallow, and vigils of the Goddess of love; hence the Beltein of the Celtic nations, and the descent of the god Krishna upon the plains of India, where he sported.

In no place in the world, perhaps, but in England (which is a reason why so great and beautiful a country should get rid of the disgrace,) is the remnant of the May-holiday reduced to so melancholy a burlesque as our soot and tinsel.

In Tuscany, where we have lived, it has still its guitar and its song; and its jokes are on pleasant subjects, not painful ones. We remember being awakened on May-day morning, at the village of Mariano near Fiesole, by a noise of instruments, and merry voices, in the court of the house in which we lodged,—a house with a farm and vine-yard attached to it, where the cultivator, or small farmer, lived in a smaller detached dwelling, and accounted to the proprietor for half the produce,—a common arrangement in that part of the world. The air which was played and sang was a sort of merry chaunt, as old perhaps as the time of Lorenzo de Medicis; the words to it were addressed to the occupiers of the mansion, and the neighbours, or any body who happened to shew their face; and they turned upon an imaginary connexion between the qualities of the persons mentioned and the capabilities of the season. We got up, and looked out of window; and there, in the beautiful Italian morning, under a blue sky, amidst grass and bushes, and the white out-houses of the farm, stood a group of rustic guitar-players, joking good humouredly upon every one who appeared, and welcomed as good humouredly by the person joked upon. The verses were in homely couplets; and the burden or leading idea of every couplet was the same. A respectable old Jewish gentleman,

for instance, resided there; and he no sooner shewed his face, than he was accosted as the patron of the corn season,—as the genial influence, without whom there was to be no bread?

Ora di Maggio fiorisce il grano,
Ma non può estrarre senza il Sior Abramo.

| Now in May time comes the corn; but, quoth he, though come I am,
I should never have been here, but for Signor Abraham.

A lady put forth her pretty laughing face (and a most good tempered woman she was,) She is hailed as the goddess of the May-bush.

Ora di Maggio viene il fior di spina,
Ma non viene senza la Signora Allegrina.

| Now in May time comes the bush, all to crown its queen-a,
But it never would, without Signora Allegrina.

A poor fellow, a servant, named Giuseppino or Peppino (Joe) who was given to drinking (a rare thing in Italy) and was a great admirer of the fair sex, crosses the court with a jug in his hand. It was curious to see the conscious but not resentful face with which he received the banter of his friends.

Ora di Maggio fiorisce amor e vino,
Ma ni l'un ni l'altro senza il Sior Peppino.

| Now in May time comes the flower of love and wine also;
But there is neither one nor t'other, without Signor Joe.

It would be an "advancement" to look out of a May-morning in England, and see guitar-players instead of chimney-sweeps.

Nature this month has not forsaken her festivities. She still scatters flowers, and revels in dews; she still loves her leafy garniture, and the bursts of unoppressive sunshine; for though we moderns may abandon the customs of our forefathers, and may even deny to May those joyous attributes with which they delighted to invest her; though we complain of cold winds, dull days, and frosty nights, cutting down flower and leaf, and have them too, yet is May a gladsome month withal. Vegetation has made a proud progress; it has become deep, lavish, and luxuriant; and nothing can be more delightful than the tender green of the young hawthorn leaves. Primroses still scatter their million of pale stars over shady banks, and among the mossy banks of hazels; and once more, amid the thickly-springing verdure of the meadow, we hail the golden and spotted cowslip. In woods there is a bright azure gleam of *Myorotis sylvatica*, a species of forget-me-not, and of those truly vernal flowers called by botanists *Scilla nutans*, by poets blue-bells, and by country folks cuckoo's stockings. The ferns are pushing forth their russet scrolls amongst the forest moss and dead leaves. In pools—and none of our indigenous plants can rival our aquatic ones in elegance and delicate beauty—are this month found the lovely water-violet (*Hottonia palustris*) and the buck bean, originally *bog-bane* or bog plant, from its place of growth (*Menyanthes trifoliata*), like a fringed hyacinth. The gorse and broom are glorious on heaths and in lanes.

In the early part of this month, if we walk into woods, we shall be much struck with their peculiar beauty. Woods are never more agreeable objects than when they have only half-assumed their green array. Beautiful and refreshing is the sight of the young leaves bursting forth from the grey boughs, some trees at one degree of advance, some at another. The assemblage of the giants of the woods is seen, each in its own character and figure; neither disguised nor hidden in the dense mass of foliage which obscures them in summer;—you behold the scattered and majestic trunks; the branches stretching high and wide; the dark drapery of ivy which envelopes some of them, and the crimson flush that grows in the world of living twigs above. If the contrast of grey and mossy branches, and of the delicate richness of young leaves gushing out of them in a thousand places be inexpressibly delightful to behold, that of one tree with another is not the less so. One is nearly full clothed,—another is mottled with grey and green, struggling as it were which should have the predominance, and another is still perfectly naked. The wild-cherry stands like an apparition in the woods, white with its profusion of blossom, and the wilding begins to exhibit its rich and blushing countenance. The pines look dim and dusky amid the lively hues of spring. The abeles are covered with their clusters of albescent and powdery leaves and withering catkins; and beneath them the pale spathes of the arum, fully expanded and displaying their crimson clubs, presenting a sylvan and unique air. And who does not love 'the wood-notes wild?' We again recognize the speech of many a little creature who, since we last heard it, has traversed seas and sojourned in places we wot not of. The landscape derives a great portion of its vernal cheerfulness not merely from the *songs* of birds but from their cries. Each has a variety of cries indicative of its different moods of mind, so to speak, which are heard only in spring and summer, and are both familiar and dear to a lover of nature.



Foeniculum graveolens

ANETHUM GRAVEOLENS.—GARDEN DILL.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

FIG. (a) represents a unexpanded flower, somewhat magnified, with the apex of the petals inflexed; (b) the same fully expanded; (c) a stamen and anther; (d) the germen and styles; (e) a seed; (f) the same, cut transversely.

DILL is a hardy biennial plant, a native of the corn fields of Spain and Portugal, and appears to have been introduced into England about the year 1570. According to Dr. Ainslie, it is also cultivated in Hindostan, where the seeds, called by the Brahmins *nishi*, are frequently sold in the bazaars of Lower India for caraway seeds. It is sometimes cultivated in our gardens as a medicinal plant, flowering in June and July.

The root is long, tapering, and whitish, striking deep into the ground, and sending up several erect, round, leafy, branching, jointed stems, rising to the height of two or three feet. The whole plant, with the exception of the flowers, is smooth, and of a deep glaucous-green colour. The leaves, as in all the plants of this natural order, are placed alternately. They are large and doubly pinnated, upon broad, sheathing footstalks, with the leaflets linear and pointed. The flowers are produced in broad, flat, terminal umbels, of numerous general and partial rays, without either general or partial involucre. There is no calyx. The corolla consists of five equal, obovate, concave, yellow petals, with a broad, obtuse, involuted point. The filaments are five, yellow, spreading, incurved, and longer than the corolla, and bearing roundish, yellow anthers. The germen is inferior, or placed below the insertion of the petals, ovate, covered by the nectary, and surmounted by two short recurved styles, with simple stigmas. The seeds are oval, flat or much compressed, with three dorsal, equidistant prominent ribs, of a brown colour, and surrounded with a dull, pale yellow membranous expansion.

CULTURE.—It is raised from seed, of which, says Mr. Loudon, half an ounce is sufficient for a bed three feet by four feet. "Sow annually in February, March, or April, or occasionally in autumn, as soon as the seed is ripe to come up stronger in the spring, in any open compartment, either in drills six or seven inches apart, or broadcast thinly, and raked in evenly. The plants should remain when raised, and may be thinned moderately, should they rise too thick. They will shoot up in stalks, with leaves and seed umbels in summer and autumn, for use in proper season."

QUALITIES.—The whole plant, particularly the seeds, which are the parts directed for use in the British Pharmacopœias, have a powerful aromatic odour, and a moderately warm pungent taste. These qualities depend on an essential oil, which is extracted by distillation with water. The seeds yield their active matter completely to alcohol, and partially to boiling water, by infusion.

MEDICAL PROPERTIES AND USES.—Like the anise and caraway, the seeds of Dill are carminative and stomachic; hence they are used chiefly in dyspepsia, and in the flatulence to which infants are subject. They were formerly supposed to promote the secretion of milk, but this opinion is long since exploded. In India, where the plant is not uncommon, Dill seeds are given in infusion, as a stomachic, and also a grateful cordial drink.

DOSE.—In powder from gr. xv. to 3j; of the essential oil, gtt. j. to gtt. iij.

OFF. PREP.—Aqua Anethi.

A delightful writer says, we can no more help turning to Mr. Howitt's pages for another extract, than we can into the fields themselves. They are truly vernal, rich in hopes of every kind, and

The blue sky bends over all!—

a cheerful religion is upon them. A kind and embracing heaven looks down: a glad and grateful earth looks up. Those writers who omit a sense of the unknown world in their books, (provided it be a kindly one) and of the great spirit of beauty and beneficence which causes all the lovely things we behold, might as well omit the sky in their landscapes, and go looking strait-forward or downward without the power of raising their eyes. To be always unconscious of what is invisible round about us, or remote, is in some sense, to be ignorant of what we see; for it prevents us from seeing the most delicate and suggestive part of its own beauty, and the innumerable images of fancy and delight which play round it.

As to flowers, which are endless in their suggestions, and about which we could hear endless talk from such writers as Mr. Howitt, we have often had a fancy respecting their origin, of which he has reminded us by speaking of them as among the "minor creations." They seem as if the younger portion of angels—

the childhood of heaven—had had a part of the creation of the world assigned to them, and that they made the flowers.—And yet who could so well know how to please them, as he who made themselves?

“The return of May again brings over us a living scene of the loveliness and delightfulness of flowers. Of all the minor creations of God, they seem to be most completely the effusions of his love, of beauty, grace, and joy. Of all the natural objects which surround us, they are the least connected with our absolute necessities. Vegetation might proceed, the earth might be clothed with a sober green; all the processes of fructification might be perfected with being attended by the glory with which the flower is crowned; but beauty and fragrance are poured abroad over the earth in blossoms of endless varieties, radiant evidences of the boundless benevolence of the Deity. They are made solely to gladden the heart of man, for a light to his eyes, for a living inspiration of grace to his spirit, for a perpetual admiration. And accordingly they seize on our affections the first moment that we behold them. With what eagerness do very infants grasp at flowers! As they become older, they would live for ever amongst them. They bound about in the flowery meadows like young fawns; they gather all they come near; they collect heaps; they sit among them, and sort them, and sing over them, and caress them, till they perish in their grasp.

This sweet May morning
The children are pulling
On every side,

In a thousand valleys far and wide
Fresh flowers.
Wordsworth.

We see them coming wearily into the towns and villages with their pinafores full, and with posies half as large as themselves. We trace them in shady lanes, in the grass of far-off fields, by the treasures they have gathered and left behind, lured on by others still brighter. As they grow up to maturity, they assume, in their eyes, new characters and beauties. Then they are strewn around them, the poetry of the earth. They become invested by a multitude of associations with innumerable spells of power over the human heart; they are to us memorials of the joys, sorrows, hopes, and triumphs of our forefathers; they are, to all nations, the emblems of youth in its loveliness and purity.

The ancient Greeks, whose souls pre-eminently sympathized with the spirit of grace and beauty in everything, were enthusiastic in their love, and lavish in their use of flowers. They scattered them in the porticoes of their temples, they were offered on the altars of some of their deities; they were strewn in the conqueror's path; on all occasions of festivity and rejoicing they were strewn about, or worn in garlands.

The guests at banquets were crowned with them.

Garlands of every green and every scent
From vales deflowered, or forest trees branch-rent,
In baskets of bright osiered gold were brought,

High as the handles heaped; to suit the thought
Of every guest, that each as he did please
Might fancy fit his brows, silk pillowed at his ease.
Keats.

The bowl was wreathed with them, and wherever they wished to throw beauty, and to express gladness, like sunshine they cast flowers. Something of the same spirit seems to have prevailed among the Hebrews. “Let us fill ourselves,” says Solomon, “with costly wine and ointments; and let no flower of the spring pass by us. Let us crown ourselves with rose-buds before they be withered.” But amongst that solemn and poetical people they were commonly regarded in another and higher sense; they were the favourite symbols of the beauty and the fragility of life. Man is compared to the flower of the field, and it is added, “the grass withereth, the flower fadeth.” But of all the poetry ever drawn from flowers, none is so beautiful, none is so sublime, none is so imbued with that very spirit in which they were made as that of Christ. “And why take ye thought for raiment? Consider the lilies of the field, how they grow; they toil not, neither do they spin; and yet, I say unto you, that even Solomon in all his glory was not arrayed like one of these. Wherefore, if God so clothe the grass of the field, which to-day is, and to-morrow is cast into the oven, shall he not much more clothe you; O ye of little faith!” The sentiment built upon this, entire dependance on the goodness of the Creator, is one of the lights of our existence, and could only have been uttered by Christ; but we have here also the expression of the very spirit of beauty in which flowers were created; a spirit so boundless and overflowing that it delights to enliven and adorn with these radiant creatures of sunshine the solitary places of the earth; to scatter them by myriads over the very desert “where no man is; on the wilderness where there is no man;” sending rain “to satisfy the desolate and waste ground, and to cause the bud of the tender herb to spring forth.”

In our confined notions we are often led to wonder why

Full many a flower is born to blush unseen,

| And waste its fragrance on the desert air?

why beauty, and flowers, and fruit, should be scattered so exuberantly where there are none to enjoy them. But the thoughts of the Almighty are not as our thoughts. He sees them; he doubtlessly delights to behold the beauty of his handiworks, and rejoices in that tide of glory which he has caused to flow wide through the universe. We know not either, what spiritual eyes besides may behold them; for pleasant is the belief that

Myriads of spiritual creatures walk the earth.



Sphenotoma gracilis.

SPHENOTOMA GRACILIS.—SLENDER SPHENOTOMA.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, EPACRIDEÆ.

1. The two Bractes, with a leaf at the base. 2. Calyx. 3. Tube of the Corolla spread open to show the insertion of the 5 Stamens. 4. The pubescent Ovarium, terminated by the Style and slightly two-lobed Stigma.

A small branching evergreen Heath-like Shrub, *branches* long and slender, erect or ascending, thickly clothed with leaves, the leafy stems hairy; the flowering ones smooth. *Leaves* recurved, cucullate at the base and sheathing the stem, leaving scars on it when they drop off: those on the main branches subulately lanceolate, taper-pointed, smooth on the upper side and hairy underneath, the margins fringed with long hairs: those on the flowering branches shorter, broader, and smooth, striate: on the flower-stem or peduncle they are lanceolate, taper-pointed, broad at the base, and pressed close to the stem. *Flowers* white, terminal, in a close ovate spike, very sweet-scented. *Bractes* two, at the base of the calyx, about half the length of the leaf that supports it; striate, and very hairy. *Calyx* of 5 sepals, that are lanceolate, acute, hairy, striate, the points marcescent. *Corolla* tubular; limb spreading, saucer-shaped, the edges a little crumpled; mouth nearly closed: tube slender, about the length of the calyx. *Stamens* 5, inserted in the tube, *filaments* short, attached to the back of the anthers. *Ovarium* pubescent, 5-celled. *Style* smooth, thickening upwards. *Stigma* capitate, slightly two-lobed.

It is a native of the South coast of New Holland, and is a valuable acquisition to our Greenhouses, both from its beauty and the delightful fragrance of its flowers. Mr. Brown included it in the genus *DRACOPHYLLUM*, but made it with two other nearly related species a distinct section or subgenus, to which he gave a proper name, which we have adopted; and as they are so very different both in habit and character from the true species of *DRACOPHYLLUM*, we have thought it best to give them as a distinct genus.

The present species requires to be potted in sandy peat soil, the pots to be well drained with potsherds that the wet may pass off readily, as nothing is more injurious to them than to be sodden with moisture: young cuttings, planted in pots of sand under a bellglass in Autumn, will strike root readily.*

The generic name is derived from *σφενος*, to connect or bind together, and *τομος*, a slice or section.

The general character of June, (says Mr. Howitt,) in the happiest seasons, is fine, clear, and glowing, without reaching the intense heats of July. Its commencement is the only period of the year in which we could possibly forget that we are in a world of perpetual change and decay. The earth is covered with flowers, and the air is saturated with their odours. It is true that many have vanished from our path, but they have slid away so quietly, and their places have been occupied by so many fragrant and beautiful successors, that we have scarcely been sensible of their departure. Every thing is full of life, greenness, and vigour. Families of young birds are abroad, and giving their parents a busy life of it, till they can peck for themselves. Rooks have deserted their rookery, and are feeding their voracious young in every pasture and under every green tree. The swallow and swift are careering in the clear skies, and

Ten thousand insects in the air abound
Flitting on glancing wings that yield a summer sound.
Wiffen.

The flower-garden is in the height of its splendour. Roses of almost innumerable species,—I have counted no less than fourteen in a cottage garden,—lillies, jasmins, speedwells, rockets, stocks, lupines, geraniums, pinks, poppies, valerians red and blue, mignonette, &c., and the glowing rhododendron abound.

It is the very carnival of Nature, and she is prodigal of her luxuries. It is luxury to walk abroad, indulging every sense with sweetness, loveliness, and harmony. It is luxury to stand beneath the forest-side, when all is still and basking at noon; and to see the landscape suddenly dark; the black and tumultuous clouds to assemble as at a signal; to hear the awful thunder crash upon the listening ear; and then, to mark the glorious bow rise on the lurid rear of the tempest, the sun laugh jocosely, and

Every bathed leaf and blossom fair
Pour out its soul to the delicious air.

It is luxury to haunt the gardens of old-fashioned houses in the morning, when the bees are flitting forth with a rejoicing hum; or at eve, when the honey-suckle and the sweet-briar mingle their spirit

* Flora Australasica.

with the breeze. It is luxury to plunge into the cool river. To steal away into a quiet valley by a winding stream, buried, completely buried, in fresh grass; the foam-like flowers of the meadow-sweet, the crimson loose-strife, and the large blue geranium nodding beside us; the dragon-fly, the ephemera, and the king-fisher glancing to and fro; the trees above casting their flickering shadows on the stream; and one of our ten thousand volumes of our delightful literature in our pockets. What luxurious images would there float through the mind! It is in the flowery lap of June that we can best climb

Up to the sunshine of encumbered ease.

How delicious too are the evenings become. The frosts and damps of spring are past; the earth is dry, the night air is balmy and refreshing; the glow-worm has lit her lamp: the bat is circling about; the fragrant breath of flowers steals into our houses; and the moth flutters against the darkening pane. Go forth when the business of the day is over, thou who art pent in city toils, and stray through the newly-shot corn along the grassy and hay-scented fields; linger beside the solitary woodland; the gale of heaven is stirring its mighty and umbrageous branches; the wild rose, with its flowers of most delicate odour, and of every tint from the deepest red to the purest pearl; the wreathed and luscious honey suckle, and the verdurous, snowy-flowered elder embellish every way-side, or light up the most shadowy region of the wood. Field peas and beans in full flower, add their spicy aroma; the red clover is at once splendid, and profused of its honied breath. The young corn is bursting into ear; the awned heads of rye, wheat and barley, and the nodding panicles of oats shoot from their green and glaucous stems, in broad, level, and waving expanses of present beauty and future promise. The very waters are strewn with flowers; the buck-bean, the water-violet, the elegant flowering-rush, and the queen of the waters, the pure and the splendid white lily, invest every stream and lonely moor with grace. The mavis and the merle, those worthy favourites of the olden bards, and the woodlark, fill the solitude with their elegant evening songs.

Over its own sweet voice the stock-dove broods;

and the cuckoo pours its mellowest note from some region of twilight shadow. The Sunsets of this month are transcendantly glorious, the mighty luminary goes down pavilioned amidst clouds of every hue: the splendour of burnished gold, the deepest mazarine blue fading away into the deepest heavens to the palest azure, and an ocean of purple is flung over the twilight woods, or the far stretching and lonely horizon. The heart of the spectator is touched; it is melted and wrapt into dreams of past and present, pure, elevated, and tinged with a poetic tenderness.

* * * * *

SHEEP-SHEARING, began last month, is generally completed this. It is one of the most picturesque operations of rural life, and from the most ancient times, it has been regarded as a scene of gladness and joy.

Like most of our old festivities, however, this has for late years declined, yet two instances in which it has been attempted to keep it alive, on a noble scale, worthy of a country so renowned for its flocks and its fleeces, will occur to the reader,—those of Holkham and Woburn; and in the wilds of Scotland, and the more rural parts of England, the ancient glory of sheep-shearing has not entirely departed. And, indeed, its picturesqueness can never depart, however its jollity may. The sheep washing, however, which precedes the shearing, has more of rural beauty about it. As we stroll over some sunny heath, or descend into some sylvan valley in this sweet month, we are apt to come upon such scenes. We hear afar off the bleating of flocks; as we approach some clear stream, we behold the sheep penned on its banks; in mid stream stand sturdy hinds ready to receive them as they are plunged in, one by one, and after squeezing their saturated fleeces well between their hands, and giving them one good submersion, they guide them to the opposite bank. The clear running waters, the quiet fields, the whispering fresh boughs that thicken around, and the poor dripping creatures themselves, that, after giving themselves a staggering shake, go off gladly to their pasture, form to the eye an animated and splendid *tout ensemble*.



Daucus Carota

DAUCUS CAROTA.—WILD CARROT.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

Fig. (a) a floret somewhat magnified, to show the stamens, and a single ray of the umbel, with the involucre; (b) an achenium.

In its wild state, the Carrot is a common weed in this country, growing by road sides, especially in a gravelly or chalky soil; and is known by the name of *Bird's-nest*, from the appearance of the umbels as they approach maturity. It is a biennial plant, flowering in June and July, and ripening its seeds in September.

The root of the Wild Carrot is slender, dry, somewhat woody, of a yellowish colour, and aromatic. The root of the Garden Carrot, which is reckoned only a variety, is succulent, commonly of a yellow or an orange colour, and is universally known as an article of domestic economy. The stem of the wild sort is about two feet high, erect, furrowed, branched, and hairy. The leaves are alternate, on broad footstalks, bipinnate, of a dark green colour, and hairy, especially beneath. The umbels, which terminate the long, leafless branches, are solitary, large, and, as they approach maturity, the external rays become incurved, which renders the inner surface of the umbel concave like a bird's-nest. Both umbels are many-rayed, and consist of flowers that are small, and generally white, except the abortive ones in the centre of the umbel, where they have a purple or reddish hue. The general involucre is composed of many-winged, or pinnatifid leaves, shorter than the umbel; the partial ones undivided, or sometimes 3-cleft. The petals are unequal, radiate, and obcordate. The achenia are in pairs, ovate, and rough, with rigid bristles.

It is generally allowed that the cultivated Carrot is a variety of the wild; but although Miller endeavoured to improve the latter kind, by growing it in different soils, he was never able to effect his purpose: it is therefore probable that we are indebted for our delicious vegetable to an accidental growth from seed, or to a foreign supply; Carrots having been used in the reign of Elizabeth, at which time the utility of gardens was just beginning to be felt, and their stock supplied from abroad. They are cultivated in the Maharratta and Mysore countries, where they are very fine, and much eaten by the inhabitants.

CULTURE.—“Several varieties,” says Mr. Patrick Neill, “are cultivated, particularly the orange carrot, with a large long root of an orange-yellow colour; the early horn and the late horn carrot, of both which the roots are short and comparatively small; and the red or field carrot, which acquires a large size.

“Carrots are sown at two or three different seasons. The first sowing is made as early perhaps as new year's day, or at any rate before the first of February, on a warm border or in front of a hothouse. Some employ a gentle hotbed for this first crop; while others only hoop over the border, and cover it with mats during frost. The main crop of Carrots is put in in March or April; and in June or July a small bed is sown to afford young carrots in the autumn months. In some places a sowing is made a month later, to remain over winter, and afford young carrots in the following spring. These, however, often prove stringy, but they are useful in flavouring soups. In light early soils, it is better that the principal crop should not be sown sooner than the end of April or beginning of May; for in this way the attacks of many larvae are avoided. For the early crops the horn carrot is best; for the principal crops, the orange variety is preferred, but the red is also much cultivated.

“The fruits having many forked hairs on their borders, by which they adhere together, are rubbed between the hands with some dry sand, so as to separate them. On account of their lightness, a calm day must be chosen for sowing; and the seeds should be trodden in before raking. They are sown either broadcast, or in drills a foot apart. When the plants come up, several successive hoeings are given; at first with a three-inch, and latterly with a six-inch hoe. The plants are thinned out, either by drawing young carrots for use, or by hoeing, till they stand eight or ten inches from each other, if sown by broadcast, or six or seven inches in line. The hoeing is either performed only in showery weather, or a watering is generally given after the operation, in order to settle the earth about the roots of the plants left.

“Carrots thrive best in light ground, with a mixture of sand. It should be delved very deep, or even trenched, and at the same time well broken with the spade. If the soil be naturally shallow, the late horn carrot is to be preferred to the orange or red. When manure is added to carrot ground it should be buried deep, so that the roots may not reach it else they are apt to become forked and diseased. In general it is best to make carrots the second crop after manuring. From the Scottish Horticultural Memoirs, however

(vol. i. p. 129.) we learn that pigeons' dung, one of the hottest manures, far from injuring carrots, promotes their health, by preventing the attacks of various larvæ.

"Carrots are taken up at the approach of winter, cleaned and stored among sand. They may be built very firm by laying them heads and tails alternately, and packing with sand. In this way, if frost be excluded from the storehouse, they keep perfectly well till March or April of the following year. Some persons insist that the tops should be entirely cut off at the time of storing; while others wish to preserve the capability of vegetation, though certainly not to encourage the tendency to grow.

From old Parkinson we learn, that carrot leaves were in his days thought so ornamental that ladies wore them in place of feathers. It must be confessed that the leaves are beautiful. If during winter a large root be cut over about three or four inches from the top, and be placed in a shallow vessel with water, over the chimney-piece, young and delicate leaves will unfold themselves all around, producing a very pretty appearance enhanced no doubt by the general deadness of that season of the year."

QUALITIES AND CHEMICAL PROPERTIES.—The seeds of the wild carrot are aromatic, both in taste and odour. Water digested on them becomes impregnated with the latter quality, but it extracts little of their taste. They yield a yellowish essential oil, and give out all their virtues to spirit. M. Braconot has discovered a new acid, named *pectic acid*, which is universally diffused in all vegetables. The following is the method of preparing pectic acid from carrots:—The roots being well washed, are reduced to a pulp by means of a grater. The juice is pressed out, and the grounds repeatedly washed with filtered rain-water, till the water passes out colourless. With these grounds, and a certain quantity of water, a semiliquid pap is made, into which is stirred a solution of potash or soda of commerce, rendered caustic, in quantity sufficient to maintain in the liquor, till the end of the operation, a slight excess of alkali, perceptible to the taste. The mixture is immediately exposed to heat, and made to boil, till, on taking out with a tube a portion of the thick resulting liquor, it coagulates entirely into a jelly with an acid. The boiling liquor is then strained through linen. The mass is washed with rain-water, containing no sulphate of lime, and the liquors, which are thick and mucilaginous, are added together, and will form into a jelly, if allowed to cool. The solution of this pectate is decomposed with a little muriate of lime, diluted with a great deal of water. By this means, we obtain an extremely abundant transparent jelly of insoluble pectate of lime, which it is easy to wash well upon a linen cloth. This combination is boiled for some minutes with water, acidulated by a little muriatic acid, which dissolves the lime with the starch. The whole is afterwards thrown upon a linen cloth, and the pectic acid is obtained, and may be washed with the greatest facility with pure water.

The proportions of the ingredients are 50 parts of carrots, 300 parts of water, and one part of potash. Pectic acid in jelly liquifies with extreme facility on the affusion of a few drops of ammonia. The solution evaporated to dryness, gives a residue, a sub-pectate of ammonia, which swells up extremely in distilled water, dissolves in it, and thickens a great quantity of that liquid.

It is remarkable how small a quantity of this salt can communicate to great quantities of sugared water the property of gelatinizing. M. Braconot dissolved, in a quantity of warm water, one part of this salt, produced from the root of the turnip. He dissolved some sugar in the liquor, and then added an infinitely small quantity of the acid; a moment after, the whole had formed into a mass of trembling jelly, of the weight of three hundred parts. The inventor has prepared, by these means, aromatized jellies, perfectly transparent and colourless, very agreeable to the taste and to the eye. This acid is also obtained from fruits, and may be used in the preparation of jellies. When it is wished, for example, to make a lemon jelly, one part of the acid in jelly, well drained, is mixed with three parts of distilled water; and to these, a small quantity of a dilute solution of pure potash and soda is added, till the acid is dissolved and saturated. This solution is exposed to heat, and three parts of sugar are dissolved in it, a small portion of sugar being previously rubbed on the rind of a lemon. A small quantity of very diluted muriatic or sulphuric acid is added to the liquor to decompose the pectate; the mixture being agitated acquires consistency, and forms into a jelly a short time afterward.

One of the most valuable properties that the author has discovered in the soluble pectates is, that they may be considered as the most certain antidotes in cases of poisoning by the metallic salts, with the exception of corrosive sublimate, nitrate of silver, and emetic tartar.

MEDICAL PROPERTIES AND USES.—The seeds of Carrot are carminative and somewhat diuretic; and by Schroder, and others, have been recommended for flatulent cholice, hiccough, dysentery, chronic coughs, &c. They appear to be of little use, excepting as correctors of flatulency. Dr. Ainslie, in his elaborate work, informs us, that the Arabians place the root of the Carrot amongst their Mobehyet, Aphrodisiaca, a proof that they never could have supposed them to be indigestible; which they certainly are not, if they be young and well boiled. Bergius informs us that the expressed and inspissated juice is sweet, approaching to the nature of honey, but not crystallizable: and Maregraf recommends recent roots to be cut, well washed, and beaten into a pulp; the juice of which is to be expressed through a sieve, and inspissated to the consistence of honey, when it may be used at table instead of sugar, and will be found a useful remedy for infantile and consumptive coughs, and for worms. The root, beaten into a pulp, forms an excellent antiseptic poultice for cancerous and ill-conditioned sores, especially when combined with hemlock. The dose of the bruised seed is from ʒj to ʒj. or more.



Boronia serrulata.

BORONIA SERRULATA.—ROSE-COLOURED BORONIA.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, RUTACEÆ.—THE RUE TRIBE.

1. Calyx spread open. 2. The eight Stamens, every other one shortest, with smaller anthers. 3. One of the Stamens, detached, the filaments bearded at the base, and terminated in a tufted head beyond the anther. 4. Ovarium, terminated by a short 4-furrowed Style, and a large 4-lobed capitate Stigma.

A dwarf bushy evergreen Shrub: *branches* smooth, rugged where the leaves have fallen, erect or slightly spreading. *Leaves* distichous, trapeziform, or nearly elliptical, acute slightly twisted, attenuated to the base, smooth, but dotted with numerous small dots, glandularly serrulate on the margins. *Petioles* very short, setting close to the stem, reddish. *Flowers* terminal, crowded, from 4 to 12, of a bright rose colour, very fragrant. *Bractes* at the base of the peduncles, lanceolate, acute, of a membranaceous texture. *Calyx* 4-cleft, persistent, the laciniae lanceolate, acute, with membranaceous margins, spreading. *Petals* 4, ovate, acute, slightly mucronate at the points, about half an inch in length, persistent. *Stamens* 8, inserted in the receptacle, all bearing anthers, every other one longest, opposite to the sepal, and bearing the largest anther, which contains the greatest quantity of pollen, but the whole are fertile; *filaments* glandularly hairy, erect, the points curved inwards, terminated in a broad tufted head beyond the anthers, which are two-lobed, and surround the style: *pollen* pale yellow. *Ovarium* 4-lobed, smooth and glossy. *Style* 1, short, 4-furrowed, when full grown quite hid by the large 4-lobed capitate *Stigma*.

The present beautiful plant is deserving a place in every collection, both for its beauty and the delightful fragrance of its flowers, which has obtained for it the name of the native Rose in New South Wales; it may certainly be considered as one of the most ornamental plants of the Greenhouse, thriving well in a light turfy peat soil, and the pots to be well drained with potsherds broken small, that the wet may pass off readily; but it is rather more tender than some of the plants from New South Wales, requiring the protection of a good Greenhouse in Winter. Young cuttings of it, planted in sand, under bell-glasses, in Summer, placed in a warm but shady situation, and to be kept regularly moist, will be rooted by the following Spring, when they must be potted singly into small pots, and all the sand must be shook clean from their roots that they might not canker; they should then be placed in a close frame for a few days, until they have made fresh roots, and must be shaded from the sun, when they must be hardened to the air by degrees; evening is the best time for giving air at first, as if given in the day time, when the sun shines, they will be liable to wither with the heat.

The genus was named by Sir J. E. Smith, in memory of Francis Borone, a native of Milan, who unfortunately died at an early age, by an accidental fall at Athens, while attending Professor Sibthorp on a botanical tour to that country.*

A popular author says, "May we exhort such of our readers as have no pictures hanging in their room to put one up immediately? we mean in their principal sitting-room;—in all their rooms, if possible, but, at all events, in that one. No matter how costly, or the reverse, provided they *see something in it*, and it gives them a profitable or pleasant thought. Some may allege that they have "no taste for pictures;" but they have a taste for objects to be found in pictures,—for trees, for landscapes, for human beauty, for scenes of life; or, if not for all these, yet surely for some one of them; and it is highly useful for the human mind to give itself helps towards taking an interest in things apart from its immediate cares or desires. They serve to refresh us for their better conquest or endurance; to render sorrow unselfish; to remind us that we ourselves, or our own personal wishes, are not the only objects in the world; to instruct and elevate us, and put us in a fairer way of realizing the good opinions which we would all fain entertain of ourselves, and in some measure do; to make us compare notes with other individuals, and with nature at large, and correct our infirmities at their mirror by modesty and reflection; in short, even the admiration of a picture is a kind of additional tie on our consciences, and rebinding of us to the greatness and goodness of nature.

Mr. Hazlitt has said somewhere, of the portrait of a beautiful female with a noble countenance, that it seems as if an unhandsome action would be impossible in its presence. It is not so much for restraint's sake, as for the sake of diffusiveness of heart, or the going out of ourselves, that we would recommend pictures; but, among other advantages, this also, of reminding us of our duties, would doubtless be one; and

* Flora Australasica.

if reminded with charity, the effect, though perhaps small in most instances, would still be something. We have read of a Catholic money-lender, who, when he was going to cheat a customer, always drew a veil over the portrait of his favourite Saint. Here was a favourite vice, far more influential than the favourite Saint; and yet we are of opinion that the money-lender was better for the Saint than he would have been without him. It left him faith in something; he was better for it in the intervals; he would have treated his daughter the better for it, or his servant, or his dog. There was a bit of heaven in his room,—a sun-beam to shine into a corner of his heart,—however he may have shut the window against it, when heaven was not to look on.

The companionship of anything greater or better than ourselves, must do us good, unless we are destitute of all modesty or patience. And a picture is a companion, and the next thing to the presence of what it represents. We may live in the thick of a city, for instance, and can seldom go out, and “feed” ourselves

With pleasure of the breathing fields;

but we can put up a picture of the fields before us, and, as we get used to it, we shall find it the next thing to seeing the fields at a distance. For every picture is a kind of window, which supplies us with a fine sight; and many a thick, unpierced wall thus lets us into the studies of the greatest men, and the most beautiful scenes of nature. By living with pictures we learn to “read” them,—to see into every nook and corner of a landscape, and every feature of the mind; and it is impossible to be in the habit of these perusals, or even of being vaguely conscious of the presence of the good and beautiful, and considering them as belonging to us, or forming a part of our common-places, without being, at the very least, less subject to the disadvantages arising from having no such thoughts at all.

And it is so easy to square the picture to one’s aspirations, or professions, or the powers of one’s pocket. For, as to resolving to have no picture at all in one’s room, unless we could have it costly, and finely painted, and finely framed, that would be a mistake so vulgar, that we trust none of our readers could fall into it. The greatest knave or simpleton in England, provided he is rich, can procure one of the finest paintings in the world to-morrow, and know nothing about it when he has got it; but to feel the beauties of a work of art, or to be capable of being led to feel them, is a gift which often falls to the lot of the poorest; and this is what Raphael or Titian desired in those who looked at their pictures. All the rest is taking the clothes for the man. Now it so happens, that the cheapest engravings, though they cannot come up to the merits of the originals, often contain no mean portion or shadow of them; and when we speak of putting pictures up in a room, we use the word “picture” in the child’s sense, meaning any kind of graphic representation, oil, water-colour, copper-plate, drawing, or wood-cut. And any one of these is worth putting up in your room, provided you have mind enough to get a pleasure from it. Even a frame is not necessary, if you cannot afford it. Better put up a rough, varnished engraving, than none at all,—or pin, or stick up any engraving whatsoever, at the hazard of its growing never so dirty. You will keep it as clean as you can, and for as long a time: and as for the rest, it is better to have a good memorandum before you, and get a fresh one when you are able, than to have none at all, or even to keep it clean in a portfolio. How should you like to keep your own heart in a portfolio, or lock your friend up in another room? We are no friends to portfolios, except where they contain more prints than can be hung up. The more, in that case, the better.

Our readers have seen in all parts of the country, over the doors of public-houses, “Perkins and Co.’s Entire.” This Perkins, who died wealthy, a few years ago, was not a mere brewer or rich man. He had been clerk to Thrale, the friend of Dr. Johnson; and, during his clerkship, the Doctor happening to go into his counting-house, saw a portrait of himself (Johnson) hanging up in it. “How is this sir?” inquired Johnson. “Sir,” said Perkins, “I was resolved that my room should have had one great man in it.” “A very pretty compliment,” returned the gratified moralist, “and I believe you mean it sincerely.”

Mr. Perkins did not thrive the worse for having the portrait of Johnson in his counting-house. People are in general quite enough inclined to look after the interests of “number one;” but they make a poor business of it, rich as they may become, unless they include a power of forgetting it in behalf of number two; that is to say, of some one person, or thing, besides themselves, able to divert them from mere self-seeking. It is not uncommon to see one solitary portrait in a lawyer’s office, and that portrait, a lawyer’s, generally some judge. It is better than none. Anything is better than the poor, small unit of a man’s selfish self, even if it be but the next thing to it. And there is the cost of the engraving and frame. Sometimes there is more; for these professional prints, especially when alone, are meant to imply, that the possessor is a shrewd, industrious, proper lawyer, who sticks to his calling, and wastes his time in “no nonsense;” and this ostentation of business is in some instances a cover for idleness or disgust, or a blind for a father or rich uncle. Now it would be better, we think, to have two pictures instead of one,—the judge’s by all means, for the professional part of the gentleman’s soul,—and some one other picture, to show his client that he is a man as well as a lawyer, and has an eye to the world outside of him, as well as to his own; for as men come from that world to consult him, and generally think their cases just in the eyes of common sense as well as law, they like to see that he has some sympathies as well as cunning.





Bryonia dioica.

BRYONIA DIOICA.—RED-BERRIED BRYONY.

CLASS XXI. MONŒCIA.—ORDER V. PENTANDRIA.

NATURAL ORDER, CUCURBITACEÆ.—THE GOURD TRIBE.

Fig. (a) represents the corolla spread open to show the anthers; (b) the germen, with its styles and stigmas; (c) the ripe fruit.

THIS is an indigenous plant, with annual stems and a perennial root; very common in dry hedges, and flowering from May to September.

From a large, fleshy root, which is often as thick as a man's thigh, of a white colour, and subdivided below, this species of bryony rises with several slender, herbaceous, annual, rough, leafy stems, somewhat branched, and climbing by means of tendrils to the height of several feet. The leaves are large, with five acute lobes, hairy on both sides, rough all over with minute callous tubercles, and disposed alternately on strong hairy footstalks. The flowers are dioicous, or male and female on different plants; of yellowish colour, and spring in paniculiform racemes from the axillæ of the leaves. Miller observed that, after the first two or three years, old roots sometimes produced both fertile and barren blossoms on the same plant, "as is proper to all the other known species of this genus." The calyx of the staminate flower is catasepalous, bell-shaped, and deeply divided into five narrow, pointed, segments; the corolla is also bell-shaped, and divided into five deep segments which are ovate and spreading. The filaments are three; short, thick, and furnished with five anthers, of which four are in pairs, united on two of the filaments, and the fifth solitary on the third filament. The calyx and corolla of the pistilline flowers are superior, and resemble those of the staminate ones, but are smaller. The germen is inferior, surmounted by a short, strong, erect, 3-cleft style, with large, cloven, triangular, spreading stigmas. The fruit is a smooth, globular, red berry, about the size of a common garden-pea, containing five or six roundish seeds, in pairs, attached to the rind. "The true *Bryonia alba* of Linnæus, found on the continent, has black fruit, being called *alba* from its white root, in contradistinction to *Tamus*, the black-rooted Bryony."

QUALITIES AND CHEMICAL PROPERTIES.—The fresh root, which is spongy, has an extremely disagreeable odour, and a particularly nauseous taste, both which appear to depend principally upon an acrid principle that can be so dissipated by repeated washings with water, as to leave a fecula similar to that yielded by the potato; and which, in the scarcity which followed the French revolution, was resorted to as food, and found to be very nutritious. Vauquelin has lately analyzed the root. By maceration in water, and subsequent pressure in a linen cloth, the starch was separated, and obtained in a state of purity. The bitter substance was soluble both in alcohol and water, and appeared to possess the properties of pure bitter principle. It was found also to contain a considerable portion of gum; a substance which is precipitated by infusion of galls, and which Vauquelin denominates *vegeto-animal matter*, some woody fibres, a small portion of sugar, and a quantity of super-malate of lime, and phosphate of lime.

POISONOUS EFFECTS.—Given in over-doses, the root of Bryony exerts a powerful influence on the lining membrane of the stomach and bowels; producing all the effects of an acrid cathartic, such as sickness, intense pain, and inflammation and all its consequences. Orfila infers from numerous experiments—

1st.—That the bryony root acts upon men in the same manner as upon dogs.

2nd.—That its effects may depend on the inflammation it produces, and the sympathetic irritation of the nervous system, rather than on its absorption.

3rd.—That its deleterious properties reside especially in the portion which is soluble in water.

TREATMENT.—First evacuate the stomach by ipecacuanha powder, suspended in warm water. After the stomach has been evacuated, give repeated doses of the sulphate of magnesia, dissolved in almond emulsion, which will not only operate on the bowels, but serve to defend the mucous membrane of the in-

testinal canal from the acrid effects of the poison. Should inflammatory symptoms supervene, the usual antiphlogistic treatment is to be practised.

MEDICAL PROPERTIES AND USES.—This root was formerly much extolled as a cathartic and diuretic. Its medical properties evidently depend upon its acrid juice, which is most powerful in the autumn and spring; the root must therefore be procured at one of these periods, and to insure its uniform operation, the latter period should always be chosen. The root should be cut in thin slices and dried in the sun, or in a warm room; by which means some of the acrid qualities are dissipated: and then it is a remedy of no little value in dropsical cases, as can be testified from extensive experience. The infusion is the best mode of administration, and this may be made with half an ounce of the dried root in a pint of boiling water; to which may be added one ounce of spirit of Juniper. Of this mixture a wine-glassful should be taken every four hours. Like all other irritating purgatives, it occasionally acts too powerfully; when its use must be suspended, and cordials or opiates resorted to. It has been much commended for its effects in mania, and amongst others by Sydenham. Dioscorides and Pliny, were in the habit of giving an ounce of the juice for epilepsy: some of the moderns have done the same; and to procure it, it is customary to cut off the top, and scoop a hole in the root; which in the course of a few hours will be filled. Matthiolus recommends it for hysteria. Many accounts partaking of the marvellous, are extant of its virtues in expelling worms and some imaginary parasites of the abdomen; and it was once much celebrated as an emmenagogue. Withering says, that a decoction made with a pound of the fresh root, is the best physic for horned cattle; and it is a common practice in Norfolk, to give small quantities to horses in their corn, to render their coats glossy and fine. The recent root is capable of blistering the skin, and has been found useful, if externally applied, to rheumatic affections, and also for removing extravasated blood. "In hospitals," says Dr. R. Pearson, "it would very well supply the place of jalap, and thus lead to considerable savings."

The *dose* of the powder is from half, to one dram.

A gentleman of good estate could not contrive how to waste his hours agreeably. He had no relish for the proper works of life, nor any taste for the improvements of the mind; he spent generally ten hours of the four-and-twenty in bed; he dozed away two or three more on his couch, and as many more were dissolved in good liquor every evening, if he met with company of his own humor. Thus he made a shift to wear off ten years of his life since the paternal estate fell into his hands. One evening, as he was musing alone, his thoughts happened to take a most unusual turn, for they cast a glance backward, and he began to reflect on his manner of life. He set himself to compute what he had consumed since he came of age.

"About a dozen feathered creatures, small and great, have, one week with another," said he, "given up their lives to prolong mine; which, in ten years, amounts to at least six thousand. Fifty sheep have been sacrificed in a year, with half a hecatomb of black cattle, that I might have the choicest parts offered weekly upon my table. Thus a thousand beasts, out of the flock and herd, have been slain in ten years time to feed me, besides what the forest has supplied me with. Many hundreds of fishes have, in all their varieties, been robbed of life for my repast—and of the smallest fry some thousands. A measure of corn would hardly suffice me with fine flour for a month's provision, and this arises to above six score bushels; and many hogsheads of wine, and other liquors, have passed through this body of mine—this wretched strainer of meat and drink! And what have I done, all this time, for God or man? What a vast profusion of good things upon a useless life and a worthless liver! There is not the meanest creature among all those which I have devoured, but what hath answered the end of its creation better than I. It was made to support human nature, and it hath done so. Every crab and oyster I have eaten, and every grain of corn I have devoured, hath filled up its place in the rank of beings, with more propriety than I have. Oh! shameful waste of life and time." He carried on his moral reflections with so just and severe a force of reason as constrained him to change his whole course of life, to break off his follies at once, and to apply himself to gain useful knowledge, when he was more than thirty years of age. The world were amazed at the mighty change, and beheld him as a wonder of reformation; while he himself confessed and adored the divine power and mercy that had transformed him from a brute to a man. He lived many following years with the character of a worthy man and an excellent Christian. He died with a peaceful conscience, and the tears of his country were dropped upon his tomb. But this was a single instance, and we may almost venture to write "miracle" upon it. Are there not numbers, in this degenerate age, whose lives have run to utter waste, without the least tendency to usefulness?



Epilobium angustifolium.

EPILOBIUM ANGUSTISSIMUM.—NARROWEST-LEAVED WILLOW-HERB.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ONAGRARIA.—THE EVENING PRIMROSE TRIBE.

Root creeping; stems erect, nearly simple; leaves nearly sessile, lanceolate, undulated, glabrous, with the veins pellucid; flowers disposed in spicate racemes, bracteolate, style reflexed, pelose at the base, shorter than the stamens. Natives of Europe and Siberia, in mountain woods and meadows. In Britain in moist shady places, particularly in the north of England and south of Scotland. It flowers in July and August.

The *Onagraceæ* are all innocuous plants, but they are more celebrated for their beauty than for their medical or economical importance. Many of them, such as the *Fuchsia*, *Epilobium*, *Gaura*, *Clarckia*, and *Lopezia*, are highly ornamental plants. *Montinia acris*, which is remarkable for having albuminous seeds, likewise deviates from the other genera in having an acrid fruit. Of the *Epilobia* or willow herbs, the *E.* or *Chamenerion angustifolium* is said to produce a kind of intoxication, or to stupify those who drink a decoction of its stems and leaves; and hence perhaps the reason why it is added by the Kamtschatdales to "enrich the spirit" they prepare from the cow-parsnip. The pith when dried becomes sweet, and the same people brew from it a kind of ale, and also procure their vinegar. The young shoots of this and other species are eatable when dressed in the same manner as asparagus. The *Epilobia* are valuable plants for shrubberies, as they will thrive under the drip of trees, and by their brilliant flowers enliven and form an admirable contrast with the more sombre foliage of shady walks. They are also very tolerant of smoke, and thrive well in large towns. The roots of the *Oenothera*, especially *O. biennis*, are also esculent. The plant was once cultivated for the sake of its tubers, which might in some measure have stood in the stead of the potato, had they not been superseded by the introduction of the latter most valuable plant. The roots of this *Oenothera* were formerly eaten after dinner, as olives now are, being esteemed incentives to wine-drinking; and hence the generic name was changed from *Onagra*, the ass-food, to *Oenothera*, the wine-trap.

The leaves of *Jussiaea Peruviana* are esteemed in America for making good emollient poultices.

A delightful writer says, "Among other comparative injuries which we are accustomed to do to the characters of things animate and inanimate, in order to gratify our human vanity,—is a habit in which some persons indulge themselves of calling insipid things and persons STICKS. Such and such a one is said to write a stick; and such another is himself called a stick;—a poor stick, a mere stick, a stick of a fellow.

We protest against this injustice done to those genteel, jaunty, useful, and flourishing sons of a good old stock. Take, for instance, a common cherry stick, which is one of the favourite sort. In the first place it is a very pleasant substance to look at, the grain running round it in glossy and shadowy rings. Then it is of primæval origin, handed down from scion to scion through the most flourishing of genealogical trees. In the third place, it is of Eastern origin; of a stock, which it is possible may have furnished Haroun Al Raschid with a djereed, or Mahomet with a camels-stick, or Xenophon in his famous retreat with fences, or Xerxes with tentpins, or Alexander with a javelin, or Sardanapalus with tarts, or Zoroaster with mathematical instruments. Lastly, how do you know but that you may have eaten cherries off this very stick; for it was once with sap, alive and rustling with foliage, and powdered with blossoms, and red and laughing with fruit. Where the leathern tassel now hangs, may have dangled a bunch of berries; and instead of the brass ferrule poking in the mud, the tip was growing into the air with its youngest green.

The use of sticks in general is of the very greatest antiquity. It is impossible to conceive a state of society, in which boughs should not be plucked from trees for some purpose of utility or amusement. Savages use clubs, hunters require lances, and shepherds their crooks. Then came the sceptre, which is originally nothing but a staff, or a lance, or a crook, distinguished from others. The Greek word for sceptre signifies also a walking-stick. A mace, however plumped up and disguised with gilding and a heavy crown, is only the same thing in the hands of an inferior ruler; and so are all other sticks used in office, from the baton of the Grand Constable of France down to the tipstaff of a constable in Bow street. As the shepherd's dog is the origin of the gentlest pet that lies on a hearth-cushion and of the most pompous barker that jumps about a pair of greys, so the merest stick used by a modern Arcadian, when he is driving his flock to

Leadenhall market with a piece of candle in his hat and No. 554 on his arm, is the first great parent and original of all authoritative staves from the beadle's cane wherewith he terrifies little-boys who eat bull's eyes in church-time, up to the silver mace of the verger; the wands of parishes and governors; the tasseled staff, wherewith the Band-Major so loftily picks out his measured way before the musicians, and which he holds up when they are to cease; the White Staff of the Lord Treasurer; the court-officer emphatically called the Gold Stick; The Bishop's Crozier (Pedum Episcopale) whereby he is supposed to pull back the feet of his straying flock; and the royal and imperial sceptre aforesaid, whose holders were formerly called shepherds of the people. The Vaulting Staff, a luxurious instrument of exercise, must have been used in times immemorial for passing streams and rough ground with. It is the ancestor of the staff with which Pilgrims travelled. The Staff and Quarter-Staff of the country Robin Hoods is a remnant of the war-club. So is the Irish Shillelah, which a friend has well defined to be "a stick with two butt-ends." The originals of all these, that are not extant in our own country, may still be seen wherever there are nations uncivilized.

But sticks have been great favourites with civilized as well as uncivilized nations; only the former have used them more for help than ornament. The Greeks were a sceptropherous people. Homer probably used a walking-stick, because he was blind; but we have it on authority that Socrates did. On his first meeting with Xenophon, which was in a narrow passage, he barred up the way with his stick, and asked him in his good-natured manner, where provisions were to be had. Xenophon having told him, he asked again, if he knew where virtue and wisdom were to be had; this reducing the young man to a non-plus, he said, "Follow me, and learn;" which Xenophon did, and became the great man we have all heard of. The fatherly story of Agesilaus, who was caught amusing his little boy with riding on a stick, and asked his visitor whether he was a father, is too well known for repetition.

There is an illustrious anecdote connected with our subject in Roman history. The highest compliment, which his countrymen thought they could pay to the first Scipio, was to call him a walking-stick; for such is the signification of his name. It was given him for the filial zeal with which he used to help his old father about, serving his decrepid age instead of a staff. But the Romans were not remarkable for sentiment. What we hear in general of their sticks, is the thumpings which servants get in their plays; and above all, the famous rods which the lictors carried, and which being actual sticks, must have inflicted horrible dull bruises and malignant stripes. They were pretty things, it must be confessed, to carry before the chief magistrate; just as if the King or the Lord Chancellor were to be preceded by a cat-o'-nine tails.

Sticks are not at all in such request with modern times as they were. Formerly, we suspect, most of the poorer ranks in England used to carry them, both on account of the prevalence of manly sports, and for security in travelling: for before the invention of posts and railroads, a trip to Marlowe or St. Albans was a thing to make a man write his will. As they came to be ornamented, fashion adopted them. The Cavaliers of Charles the First's time were a sticked race. Charles the First, when at his trial, held out his stick to forbid the Attorney-General's proceeding. There is an interesting little story connected with a stick, which is related of Andrew Marvell's father, (worthy of such a son), and which as it is little known, we will repeat; though it respects the man more than the machine. He had been visited by a young lady, who in spite of a stormy evening persisted in returning across the Humber, because her family would be alarmed at her absence. The old gentleman, high-hearted and cheerful, after vainly trying to dissuade her from perils which he understood better than she, resolved in his gallantry to bear her company. He accordingly walked with her down to the shore, and getting into the boat, threw his stick to a friend, with a request, in a lively tone of voice, that he would preserve it for a keepsake. He then cried out merrily "Ho-hoy for Heaven!" and put off with his visitor. They were drowned.

As commerce increased, exotic sticks grew in request from the Indies. Hence the Bamboo, the Whanghee, the Jambee which makes such a genteel figure under Mr. Lilly's auspices in the Tatler; and our light modern cane, which the stroller buys at sixpence a piece, with a twist of it at the end for a handle. The physicians, till within the last few score of years, retained the wig and gold-headed cane.

Canes became so common before the decline of the use of sticks, that whenever a man is beaten with a stick, let it be of what sort it may, it is still common to say that he has had "a caning." Which reminds us of an anecdote more agreeable than surprising; though the patient doubtless thought the reverse. A gentleman, who was remarkable for the amenity of his manners, accompanied by something which a bully might certainly think he might presume upon, found himself compelled to address a person who did not know how to "translate his style," in the following words, which were all delivered in the sweetest tone in the world, with an air of almost hushing gentility:—"Sir,—I am extremely sorry—to be obliged to say,—that you appear to have a very erroneous notion of the manners that become your situation in life;—and I am compelled, with great reluctance, to add,"—(here he became still softer and more delicate,) that if you do not think fit, upon reflection, to alter this very extraordinary conduct towards a gentleman, I shall be under the necessity of—caning you." The other treated the thing as a joke; and to the delight of the bye-standers, received a very grave drubbing."



Menyanthes trifoliata.

MENYANTHES TRIFOLIATA.—THE BUCKBEAN OR BOGBEAN.

MARSH TREFOIL.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, GENTIANÆ.—THE GENTIAN TRIBE.

Fig. (a) represents the flower expanded and somewhat magnified, to show the stamens, germen, and style.

BUCK-BEAN, or Bog-bean, so termed from its leaves resembling those of the common garden-bean, is one of the most beautiful of our indigenous plants; “nor does it suffer,” as Mr. Curtis justly observes, “when compared with the Kalmias, the Rhododendrons, and the Ericas of foreign climes, which are purchased at an extravagant price, and kept up with much pains and expense, while this delicate native, which might be procured without any expense, and cultivated without any trouble, blossoms unseen, and wastes its beauty in the desert air.”

It is a native of many parts of Europe, growing abundantly in marshy meadows, and ponds, and sometimes even in ditches. The most spongy, boggy soils, which are inundated at certain seasons, and never wholly destitute of water, are the favourite stations of this plant. It often constitutes large beds, at the margins of ponds and brooks. We obtained it on the great bog on the western slope of Hampstead heath, where it grows in great plenty; but flowers very sparingly, about the end of June and beginning of July. It is common in many parts of North America, particularly in New England, and grows, according to Pursh, as far south as Virginia.

Professor Bigelow states that the Buck-bean is one of those plants which are native in Europe, and North America, with so little difference of structure in the two continents, that their specific identity can hardly be doubted; and after examining specimens from both, he could perceive no definable difference, excepting in size. The English plant, however, flowers a month later than its American representative does in the neighbourhood of Boston.

Buck-bean has a long, creeping, jointed root, with perpendicular radicles, from which proceeds a smooth, erect, cylindrical stem, that is naked and destitute of leaves, and rises to the height of a foot. The leaves are bright green, obovate, wavy, with a thick midrib, smooth on both sides, ternate or growing by threes, like those of trefoil, (whence the names Marsh-trefoil, *trifolium paludosum*, *le Treffle d'eau*, and *Menyanthes trifoliata*), at the extremity of a common foot-stalk, which issues immediately from the root, and is round, striated, forms a sheath at the bottom, and is shorter than the flowering stem. The flowers grow in a loose spike at the extremity of an erect, round, smooth stalk, longer than the leaves, which springs from within the sheath of a leaf. They are ten or twelve in number, each supported on its proper pedicel, and accompanied by small ovate bracteas. The calyx is divided into five deep, slightly spreading segments: the corolla is funnel-shaped, divided beyond the middle into five deep, spreading or recurved, pointed segments, which are white tipped with rose-colour, smooth externally, and clothed with dense, white, shaggy fibres on their upper side. The filaments are awl-shaped, bearing erect sagittate anthers of a reddish colour; germen conical; the stigma lobed or notched, with a slender style twice the length of the stamens. The capsule is ovate, succulent, 1-celled, which, when it has attained maturity, separates into two valves inclosing several small roundish seeds of a brown or yellowish colour.

Of the etymology of the *generic* name *MENYANTHES*, retained from the Greek and Latin botanist, we can give no really satisfactory account. Some render it moon-flower, a name which has reference to its presumed emmenagogue effects, in which case however it should have been written *Meneanthos*, as being compounded of *μήνη* the moon, and *ανθος* a flower, but such corruptions are not uncommon. Others deriving it from *μενην* to remain, conceive the name to be expressive of the permanency of the flower; but this conjecture is even more fanciful than the former. The name Buck-bean, is either a corruption of Bog-bean, or, what is more probable, is derived from the French, *le Bouc*, a he-goat; the plant having formerly been distinguished by the appellation, *Phaseolus Hircinus*, that is, Goat's-bean.

QUALITIES AND CHEMICAL PROPERTIES. The whole plant, and particularly the root, has an intensely bitter taste, which resides chiefly in an extractive matter, soluble in water and spirit. The root is, however, resinous, and impregnates alcohol more strongly than water; and may be precipitated from its

tincture, in part, by the latter fluid. The bitter principle is not precipitated by infusions of galls, and is thought to be the same that abounds in gentian. According to the analysis of Fromsdorf, 100 parts of the fresh plant consists of 75 parts of water, and 25 of solid matter. The expressed juice on evaporation yields 0,75 of fecula and albumen, 0,25 of a green resin, with traces of malic acid, acetate of potash, a peculiar substance resembling animal matter, a very bitter, azotic extract, and a brownish gum.

MEDICAL PROPERTIES.—The root of this which is given in small doses of about ten grains, imparts vigour to the stomach, and strengthens digestion. Its virtues were formerly properly estimated, and strange it is that so excellent a tonic should be so little employed. It gives out its bitterness to boiling water, and a tincture may be made from it quite equal in its effects to that of gentian. Large doses, either in substance or decoction, produce sickness, &c., and frequently powerful diaphoresis; in which respect it resembles many other vegetable bitters. Formerly it was employed with benefit in intermittent and remittent fevers. Boerhaave was relieved from gout by drinking the juice of the plant mixed with whey; while Alston, and others assert, that it has the power of keeping off the paroxysms of that painful complaint. Dr. Cullen speaks still higher of its virtues, for he had seen several instances of its good effects in some cutaneous diseases of the herpetic or seemingly cancerous kind, when taken by infusion, in the manner of tea. Others have commended it for rheumatism, dropsy, scurvy, and worms; and its reputation in the north of Europe, particularly in Germany, was at one time so high that it was consumed in large quantities, and deemed a sort of panacea. Its true character, however, is simply that of a powerful bitter tonic, like gentian and centuary, to which, as Professor Bigelow observes, it is closely related in its botanical habit, as well as sensible properties. Linnæus informs us in his *Flora Lapponica*, that in times of scarcity flocks will subsist upon this plant, notwithstanding its bitterness; and Dr. Tancred Robinson asserts, that sheep which have acquired a tabid condition are quickly recovered by feeding in the marshy meadows which abound with it. The Laplanders employ it as a substitute for hops: and they even introduce it in some instances into their bread, upon which Linnæus bestows the epithet, “*amarus et detestabilis*.” We conclude in the words of Bigelow when speaking of the American species: “we may regard this plant as one of the numerous bitters abounding in our country, which are fully equal in strength to imported articles of their class, and which may hereafter lessen our dependence on foreign drugs.”

A popular author observes, that “there is not a more unthinking way of talking, than to say such and such pains and pleasures are only imaginary, and therefore to be got rid of or undervalued accordingly. There is nothing imaginary, in the common acceptation of the word. The logic of Moses in the Vicar of Wakefield is good argument here:—“Whatever is, is.” Whatever touches us, whatever moves us, does touch and does move us. We recognize the reality of it, as we do that of a hand in the dark. We might as well say that a sight which makes us laugh, or a blow which brings tears into our eyes, is imaginary, as that any thing else is imaginary which makes us laugh or weep. We can only judge of things by their effects. Our perception constantly deceives us, in things with which we suppose ourselves perfectly conversant; but our reception of their effect is a different matter. Whether we are materialists or immaterialists, whether things be about us or within us, whether we think the sun is a substance, or only the image of a divine thought, an idea, a thing imaginary, we are equally agreed as to the notion of its warmth. But on the other hand, as this warmth is felt differently by different temperaments, so what we call imaginary things affect different minds. What we have to do is not to deny their effect, because we do not feel in the same proportion, or whether we even feel it at all; but to see whether our neighbours may not be moved. If they are, there is, to all intents and purposes, a moving cause. But we do not see it? No;—neither perhaps do they. They only feel it; they are only sentient,—a word which implies the sight given to the imagination by the feelings. But what do you mean, we may ask in return, by seeing? Some rays of light come in contact with the eye; they bring a sensation to it; in a word, they touch it; and the impression left by this touch we call sight. How far does this differ in effect from the impression left by any other touch, however mysterious? An ox knocked down by a butcher, and a man knocked down by a fit of the apoplexy, equally feel themselves compelled to drop. The tickling of a straw and of a comedy equally move the muscles about our mouth. The look of a beloved eye will so thrill the whole frame, that old philosophers have had recourse to a doctrine of beams and radiant particles flying from one sight to another. In fine, what is contact itself, and why does it affect us? There is no one cause more mysterious than another, if we look into it.



Anchusa tinctoria.

ANCHUSA TINCTORIA.—DYER'S ALKANET.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, BORAGINÆÆ.—THE BORAGE TRIBE.

Fig (a) the flower somewhat magnified, showing the stamens and arched valves; (b) the calyx and pistil a little magnified; (c) the fruit.

THIS plant is a perennial, a native of the south of Europe, and was found by Sibthorp in Greece. It is sometimes raised in our gardens; but the roots do not acquire in this country the fine red colour for which the foreign alkanet is prized. It has long been extensively cultivated for medicinal purposes in the neighbourhood of Montpellier, in France. It flowers from June to October.

The root is woody, long, round, tapering, branched, and covered with a blackish-red coloured bark. The herb is all over rough with short bristly hairs, proceeding from small cartilaginous tubercles or warts. Several stems arise from one root; they are round, leafy, branched, paniced above, and about a foot or eighteen inches high. The leaves are oblong, entire, convex above, and keeled underneath; the radical ones forming a tuft on the ground, elongated and tapering towards the base; the rest smaller, alternate, slightly dilated at the base, and partly embracing the stem. The spikes are generally in pairs, bent towards the top, many-flowered, with ovate bractæas, twice the length of the calyx. The calyx is reddish, with short hairs, and divided into five oblong-lanceolate segments. The corolla is funnel-shaped, consisting of a straight cylindrical tube, tumid at the lower part, closed at the mouth with five small roundish convex valves, and divided at the limb into five deep, obtuse, equal segments, of a deep azure colour. The filaments are shorter than the corolla, bearing roundish anthers: the carpels four, with awl-shaped styles, nearly as long as the tube, with a small notched stigma. The seeds are oblong, and rough with tubercles.

QUALITIES AND CHEMICAL PROPERTIES.—Alkanet root, as met with in commerce, is inodorous and nearly tasteless. The red colouring matter, according to Pelletier, with which the cortical part abounds, is of a brownish red colour, runs into a mass, which breaks with a resinous fracture, is soluble in alcohol, ether, and fat oils, which it colours red, while they preserve their transparency. It imparts scarcely any colour to water. It forms blue combinations with potass, soda, barytes, strontia, and lime: is decomposed by the action of concentrated sulphuric acid; and is converted into oxalic acid by nitric acid. When precipitated from its alcoholic menstrua by the aid of metallic solutions, it forms an excellent varnish. This colouring matter is considered by John to be a peculiar proximate principle which he has called *Pseudo-Alkannin*. M. Chevreul has lately discovered in the *Anchusa tinctoria*, and in the root of the *Viburnum Opulus* a new acid, which he terms *Phocénique*. Sometimes the roots of the *Onosma echinoides*, and *O. tinctoria*, are substituted for the *Anchusa tinctoria*. *Anchusa Virginiana* and *Echium rubrum* have roots almost equally rich in colouring matter with the true alkanet, and are sometimes used instead of it. Bergius states that the roots of the Borago *officinalis* are occasionally boiled in a decoction of Brazil wood, and sold for alkanet: the fraud, however, is easily detected by inspection, and by the substitute failing to yield its colour to the fixed oils.

USES.—This plant was formerly administered as an astringent; but has given place to medicines much more worthy of regard. It is useless, excepting as a colouring matter for oils, lip-salve, and plasters.

"But what is a plant?" says Professor Burnett, in his introductory Lecture, at King's College, "what do we mean by this word vegetable? It is a term the most ignorant presume they understand, although the most learned are unable exactly to define: for a plant is, indeed, as Theophrastus long ago observed, "a various thing, of which it is difficult to give a definition."

Tell a clown that it is difficult to distinguish between an animal and a plant, he will smile incredulously, and perhaps will say, can I mistake man-orchis roots for men? but shew him a conferva and a polype, a

lichen and a coralline, a flustra and a flag, or even a mushroom and a mollusc, and he will at once confess, at least by silence, if not by words, that he "kens not which they be."

Such presuming self-confidence in what they know, is the "badge of ignorance and the curse of fools;" it is the humble privilege of the wise alone to doubt; and they who know the most are always the most sensible how little the most enlightened know.

But this matter is apocryphal not to the unlearned and the ignorant alone: physiologists the most acute have laboured, and do labour, still in vain, succinctly, yet comprehensively, to define a plant. The difficulty, however, consists not so much in the perception of the differences which undoubtedly do exist, as in reducing these perceptions of the progressive scale of creation to our still very imperfect language. The dilemma somewhat resembles that in which an ancient philosopher is said to have been involved, who when desired to state what motion is, after much consideration, rose from his seat, walked towards the inquirer, and replied, "You see it, I can shew it to you, but I cannot tell you what motion is. Thus, also, to our question I would answer, here are plants; you see them; I can shew them to you even if I cannot, at this early period of our course, precisely tell you what a vegetable is.

Let not the bearing of this statement, however, by any one be misunderstood. Remember it is not science which *makes* the difficulty she here points out; she only shews what already is: just as "a microscope does not make the hairs on a mite's back, but only brings them within our sphere of vision. Examine for a moment these specimens illustrative of the different departments of the vegetable world; these mushrooms, flags, and mosses; these jointed and these jointless ferns; these grasses, sedges, rushes, lilies, palms; these pines, and forest trees; and these more showy flowering herbs and shrubs; of each of which extensive sections, but meagre examples, can, of necessity, be brought before you, and yet which are scattered in such infinite profusion "o'er all the deep green earth," that their varied forms and beautiful appearances are familiar to the least observant: examine these, and say, do they not attest the dogma of him of old, that a vegetable is, indeed, a various, a very various thing, of which it is difficult to give a definition: and do they not equally proclaim that science does not make the difficulty she here points out? do they not declare that she only shews what already is, although it may have hitherto escaped our observation? And hence we may conclude that the unlearned do not know more truly, because they are insensible of the imperfections of their knowledge, any more than a road becomes smooth to the purblind, merely because they do not see its roughness. Whatever is, still is, whether we know it or know it not; doubtless from the beginning eight planets always were, although the ancients knew but seven; for Herschel's telescope did not create the Georgium Sidus, but only shewed to man what mortal eyes had never seen before.

But the difficulty of diagnosis between animals and plants, and even between living and lifeless beings, so often and by so many dwelt on, is rather a speculative than a practical obscurity. Every one is sensible of differences existing between the numerous productions of nature; for were not such differences obvious, the whole would be esteemed not various, but the same. All persons, then, distinguish the peculiarities that mark the successive grades of physical existence, though few are competent to state precisely in what that difference consists: the one is the unsought observation of the savage, the other the hard-earned achievement of the sage; the former a perception that no one can avoid, the latter a science in which, not seldom, the wisest are at fault.

Still, before we presume to talk of plants, it may perhaps be required that we should attempt to solve the question that so continually recurs; viz. what is a vegetable? For plants are the principles on which all botanic lore depends; they are the very subject-matter upon which we must discourse: and although we cannot absolutely, we can relatively define them, which relative definition is, in truth, all that can legitimately be sought in any branch of natural history or philosophy. With this relative definition we shall, therefore, rest content; for the search after the absolute and positive too often becomes, as Butler has observed, on a somewhat similar occasion:—

"An ignis fatuus that bewitches,
And leads men into pools and ditches."

Hence, to shew what constitutes this various thing we call a vegetable; *i. e.* to indicate the various phenomena exhibited by certain physical existences, to note what characters distinguish the organic from the inorganic world; and amongst organic beings the vegetable, or merely vital, from the animal or sensual creation; in a word, which constitutes the several grades of men, brutes, and plants, involves much curious and important knowledge.



Aquilegia Canadensis

AQUILEGIA CANADENSIS β GRACILIS.—SLENDER CANADIAN COLUMBINE.

CLASS XIII. POLYANDRIA.—ORDER V. PENTAGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

1. The stamens exhibited with a portion of the corolla. 2. Pistils.

GENERIC CHARACTER.—*Cal.* none. *Cor.* Petals five, lanceolate, ovate, flat, spreading, equal. Nectaries five, equal, alternate with the petals; each horned, gradually broader upwards, with an oblique mouth, ascending outwardly, annexed inwardly to the receptacle; produced below into a long attenuated tube with an obtuse top. *Stam.* Filaments thirty to forty, subulate, the outer ones shorter; anthers oblong, erect, the height of the nectaries. *Pist.* Germs five, ovate-oblong, ending in subulate styles longer than the stamens. Stigmas erect, simple. Chaffs ten, wrinkled, short, separate, and involving the germs. *Per.* Capsules five, distinct, cylindric, parallel, straight, acuminate, one-valved, gaping from the tops inward. *Seeds* very many, ovate, keeled, annexed to the gaping suture.

SPECIFIC CHARACTER.—*Nectaries* straight. *Stamens* longer than the corolla.

Root perennial. Stem slender, erect, of a bright brown, supporting both leaves and flowers towards its summit: these leaves are sometimes simple, and merely lobed, while those from the root are compound, being biternate. The flowers are supported on foot-stalks from two to three inches in length. The corolla is composed of five nectaries, of a strong red towards their summit, and of a bright yellow at the mouth, between each of which is seated five small linear petals, also red. The pericarp is composed of five lobes.

The original species of *Aquilegia canadensis* has long been known and admired by the cultivators of choice flowers. The present figure is a variety which has been produced from that alluded to, and is found to possess all the attractive qualities of the parent plant, added to a peculiar delicacy of nature of its own, which has given rise to its present distinguishing name as a variety. Its style of growth is more slender and delicate than in the original species; and it requires more delicacy of treatment in its cultivation, being very particular in its soil and situation. It should be planted in a light earth composed of decayed leaves with a small portion of loam: it is more likely to succeed if kept in a pot. Thus treated, its beauties are displayed to better advantage; and it may here be better protected against a very destructive enemy, the wire-worm, which frequently attacks it in the open ground. It generally attains the height of from nine inches to a foot, producing a succession of flowers during the month of May. It will perfect its seeds, by which means it is readily increased.

The species from which this variety was produced is a native of Canada, and was introduced in 1640.*

Mr. Howitt observes that in September "The general aspect of nature is decidedly autumnal. The trees are beginning to change colour; the orchards are affluent of pears, plums, and apples; and the hedges are filled with the abundance of their wild produce, crabs, black glossy clusters of privet, buckthorn, and elder-berries which furnish the farmer with a cordial cup on his return from market on a winter's eve, and blackberries, reminding us of the Babes in the Wood.

Their little hands and pretty lips
With blackberries were dyed;
And when they saw the darkness night,
They sate them down and cried.

The hedgerows are also brightened with a profusion of scarlet berries of hips, haws, honeysuckles, viburnum, and bryony. The fruit of the mountain-ash, woody nightshade, and wild-service is truly beautiful; nor are the violet-hued sloes and bullaces, or the crimson, mossy excrescences of the wild rose-tree, insignificant objects amid the autumnal splendours of the waning year.

Notwithstanding the decrease of the day, the weather of this month is for the most part, splendidly calm; and Nature, who knows the most favourable moment to display all her works, has now instructed the geometric spider to form its radiated circle on every bush, and the gossamer spider to hang its silken threads on every blade of grass. We behold its innumerable filaments glittering with dew in the morning; and sometimes, such is the immense quantity of this secretion, that it may be seen floating in a profusion

* *Flora Conspicua.*

of tangled webs in the air, and covering our clothes, as we walk in the fields, as with cotton. These little creatures, the gossamer spiders, it has long been known, have the faculty of throwing out several of their threads on each side, which serve them as a balloon to buoy them up into the air. With these they sail into the higher regions of the atmosphere, or return with great velocity. By recent experiments, it appears that the spider and its web are not, as it was supposed, of less specific gravity than the air, and by that means ascend. The phenomenon has been supposed to be electrical, but this is doubtful: it yet requires explanation.

There is now a brightness of the sky, and a diaphanous purity of the atmosphere, at once surprising and delightful. We remark with astonishment how perfectly and distinctly the whole of the most extensive landscape lies in varied, solemn beauty before us; while, such is the reposing stillness of nature, that not a sound disturbs the sunny solitude, save perhaps the clapping of pigeons' wings as they rise from the stubbles. The clearness of vision may partly arise from the paucity of vapour ascending from the ground at this dry season, and partly from the eye being relieved from the intensity of splendour with which it is oppressed in summer; but be it what it may, the fact has not escaped one of our most beautiful poets.

There is a harmony
In autumn, and a lustre in its sky,
Which through the summer is not heard nor seen,
As if it could not be, as if it had not been.

Now it is delightful among mountains. Mountains! how one's heart leaps up at the very word! There is a charm connected with mountains, so powerful that the merest mention of them, the merest sketch of their magnificent features, kindles the imagination, and carries the spirit at once into the bosom of their enchanted regions. How the mind is filled with their vast solitude! how the inward eye is fixed on their silent, their sublime, their everlasting peaks! How our heart bounds to the music of their solitary cries, to the tinkle of their gushing rills, to the sound of their cataracts. How inspiring are the odours that breathe from the upland turf, from the rock-hung flower, from the hoary and solemn pine! how beautiful are those lights and shadows thrown abroad, and that fine transparent haze which is diffused over the valleys and lower slopes, as over a vast, inimitable picture!

At this season of the year the ascents of our own mountains are become most practicable. The heat of summer has dried up the moisture with which winter rains saturate the spongy turf of the hollows; and the atmosphere, clear and settled, admits of the most extensive prospects. Whoever has not ascended our mountains, knows little of the beauties of this beautiful island. Whoever has not climbed their long and heathy ascents and seen the trembling mountain-flowers, the glowing moss, the richly tinted lichens at his feet; and scented the fresh aroma of the uncultivated sod, and of the spicy shrubs; and heard the bleat of the flock across their solitary expanses, and the wild cry of the mountain-plover, the raven, or the eagle; and seen the rich and russet hues of distant slopes and eminences, the livid gashes of ravines and precipices, the white glittering line of falling waters, and the cloud tumultuously whirling round the lofty summit; and then stood panting on that summit, and beheld the clouds alternately gather and break over a thousand giant peaks and ridges of every varied hue,—but all silent as images of eternity; and cast his gaze over lakes and forests, and smoking towns, and wide lands to the very ocean, in all their gleaming and reposing beauty;—knows nothing of the treasures of pictorial wealth which his own country possesses.

We delight to think of the people of mountainous regions; we please our imaginations with their picturesque and quiet abodes; with their peaceful secluded lives, striking and unvarying costumes, and primitive manners. We involuntarily give to the mountaineer heroic and elevated qualities. He lives amongst noble objects, and must imbibe some of their nobility; he lives amongst the elements of poetry, and must be poetical; he lives where his fellow-beings are far, far separated from their kind, and surrounded by the sternness and the perils of savage nature; his social affections must therefore be proportionably concentrated, his home-ties lively and strong; but, more than all, he lives within the barriers, the strongholds, the very last refuge which Nature herself has reared to preserve alive liberty in the earth, to preserve to man his highest hopes, his noblest emotions, his dearest treasures, his faith, his freedom, his hearth and his home. How glorious do those mountain-ridges appear when we look upon them as the unconquerable abodes of free hearts; as the stern, heaven-built walls from which the few, the feeble, the persecuted, the despised, the helpless child, the delicate woman, have from age to age, in their last perils, in all their weaknesses and emergencies, when power and cruelty were ready to swallow them up, looked down and beheld the million waves of despotism break at their feet:—have seen the rage of murderous armies, and tyrants, the blasting spirit of ambition, fanaticism, and crushing domination recoil from their bases in despair!—“Thanks be to God for mountains!” is often the exclamation of my heart as I trace the History of the World; from age to age, they have been the last friends of man. In a thousand extremities they have saved him. What great hearts have throbbed in their defiles from the days of Leonidas to those of Andreas Hofer! What lofty souls, what tender hearts, what poor and persecuted creatures have they sheltered in their stony bosoms from the weapons and tortures of their fellow-men!



Pyrus lucida.

BEGONIA NITIDA.—SHINING-LEAVED BEGONIA.

CLASS XXI. MONECIA.—ORDER VI. POLYANDRIA.

NATURAL ORDER, BEGONIACEÆ.

GENERIC CHARACTER.—*Male flowers*.—*Calyx* wanting. *Corolla* polypetalous; petals commonly four, unequal. *Female flowers*.—*Calyx* wanting. *Corolla* with from four to nine petals, generally unequal. *Styles* three, bifid. *Capsule* triquetrous, winged, three-celled, many-seeded.

SPECIFIC CHARACTER.—Plant, a tall shrub. *Leaves* oblique, ovate, acute, obsoletely crenated, shining. *Stipules* oblong, cuspidate, keeled. *Male flowers* with four petals; two roundish, two oblong, and smaller. *Female flowers* with five equal petals. *Capsule* with a large wing.

SYNONYMOUS.—*B. obliqua*, *B. purpurea*, *B. minor*.

It affords us much gratification to perceive that this family is in some degree engaging the attention it is worthy of; but we have not yet much cause to exult, so little is the worth of its members appreciated, compared with what it ought to be. No genus of plants, as a whole, deserves more extensively to be grown; distinguished as they are by so great a diversity of character, and real beauty, and flowering freely in the extreme: some species do so nearly always, and no portion of the year is unenlivened by the blossoms of some of them. And again, they are so easily cultivated; several kinds grow and flower very freely in the greenhouse, though all are benefited by a warmer temperature, and many necessarily require it.

"The Botanical Magazine" (from which our specific character is borrowed) informs us that *B. nitida* was received at Kew from Dr. W. Brown, in 1779: it is a native of Jamaica, and one of the best of the light-flowering species; grows freely and erect, becoming a large bush, and bearing panicles of pinkish-white flowers in profusion all summer: these contrasting with the rather large, oblique, shining leaves, have a fine effect.

The ease with which *Begonias* flourish and produce bloom under any kind of treatment, though rendering them plants which all may cultivate with success, has led (in conjunction, probably, with the succulency of their nature preventing their being regarded in any other light than as objects of ornament) to their merits being lost sight of. No plants are more susceptible of improvement by good culture than the family of which the one under consideration is a member: a plant of *B. coccinea* which recently came under our observation, enjoying in a high degree the benefit of good management, could scarcely be equalled (viewing it ornamentally) by any plant, whatever its merits.

The name on the plate is one of the many by which this plant is known, but, as will be seen, is not the correct one.

Begonia is in honour of Michael Begon, a botanist of the seventeenth century.*

Professor Burnett, in his Lecture delivered in King's College, observes, that, without reference to obscure archaeological researches, the antiquity of our science may fairly be assumed, for plants were the first beings that ever sprang instinct with life on this terraqueous globe, and their culture and their care formed man's earliest employment: since, on the third day of the Creation, so soon as the dry land appeared, when, at the Divine behest, the earth brought forth grass and herbs yielding seed, and the fruit tree yielding fruit, and God saw that these works were good; since the Almighty planted a garden eastward in Eden, and put man, whom he had made, therein to dress it and to keep it; *i. e.* since out of the ground made the Lord God to grow every tree that is pleasant to the sight and good for food, and, to crown his works, created man to wonder and adore, among the numerous natural miracles which demand his notice and solicit his regard, as there are none that have received, perhaps there are few that have deserved, a greater share of attention than the wonders of the vegetable world, than the trees of the forest and the flowers of the field, which afford the chief and once the only means of sustenance to him and his. Hence some knowledge of such plants as are useful for food, as medicines, or in the arts, must have been almost coeval with our race, at least congenial with the wants of man; and this knowledge, once empirical, and merely the result of casual observation, was then (as fitted best) called *Herb-craft*; but since that the practice has been reduced to principle, it constitutes a science; it is that branch of natural philosophy and natural history now termed Botany. But, as I shall endeavour to convince you, the botany of the natural philosopher is very different from the botany of the world at large; very different from that specious yet unreal mockery of science, that spurious yet popular and fashionably trifling, which, unconsciously of the first principles of vegetable physics, contents itself with superficially scanning the names of plants, esteeming that an end which should never be considered as more than a subordinate, a secondary mean. System is but an instrument, and should never be mistaken for the work it is destined to perform: and such botanists as would confine their studies to mere names and schemes, who burden themselves with

* Paxton's Magazine of Botany.

tools which are worthless when unused, and which they use not for the purposes for which they were designed, are like scholastic pedants who make language their only study, without reference to the truths which language is destined to reveal; they are always moving, yet never getting on, never getting farther than the threshold of vegetable philosophy; for ever treading as on the wheel, a weary round of never-changing place, of never-ending toil.

Plants are the subjects of botany, their attributes the objects of the science; and, as with other things, these are essential, technical, and accidental; those, universal, general, and special; these, the objects of the study; those, the subjects to be studied; and to the reciprocal elucidation of both, the science, as a whole, is equally devoted.

The language of botany has often been regarded with fear, and we still find it to be that part of the study most commonly objected to. This is not the only case, however, in which the facilities afforded by science have been ignorantly mistaken for difficulties inseparable therefrom: other instances could be given in which what we might perhaps be allowed to call the almost too exclusive privileges of botany, have been described as its peculiar disadvantages by those who little understood their import, and consequently were led to underrate and misrepresent their value. To these I shall not further now allude, but confine my present animadversions to this outcry against *hard words*, as the technicalities of science have foolishly been called; whereas, it should be remembered, as JOHNSON says, that "words are only hard to those who do not understand them," and, so far from our terms being really hard, the language of botany is more easy and intelligible, because it is more copious and precise, than that of the other natural sciences.

Oh, believe me, the feelings with which a botanical philosopher contemplates the various productions of the vegetable world are very different from those with which they are viewed by one unblessed by the light of science! How different is the barren knowledge of the existence of all these things around us, which every one knows to be from a knowledge of the laws by which they are regulated and sustained. Never, indeed, to my mind, does true wisdom more fully vindicate her majesty and power, than when, as in this case, she thus unfolds a leaf turned down by nature, and reveals to us a record of those changes which long since have been forgotten, (if, indeed, to man they were ever known,) than when she thus turns back the pages of past time, and reads in these majestic tablets of the Creator the history of his wondrous works, as published in the volume of creation. The whole earth, like Ezekiel's scroll, is written over, both within and without: to the ignorant and the thoughtless it may, perhaps, appear to be inscribed with mourning, lamentation, and woe; but to the philosopher it tells a constant tale of miracle and mercy, as HUNTER has well observed on a somewhat similar occasion: "appearances of this sublime nature may be compared to the handwriting upon the wall, which, although seen by many, was understood by few; they seem to constitute a kind of harmonious intercourse between God and man; they are, indeed, the silent language of the Deity."

I would, therefore, recommend all persons to indulge themselves in the delights of botany; for they will find it a relaxation rather than a toil, an amusement rather than a labour; a profitable pastime in youth, an agreeable occupation in manhood, and a gratifying research in honourable old age; when having, as we hope all will do, passed through this world useful to their generation, and not useless to themselves; when having acquired, by meritorious exertion, a competency of science and a sufficiency of fame, they may retire, like Cincinnatus, from the senate to the field, and in a garden—(what pleasure is there not associated with the very name of a garden, it bespeaks at once serenity and ease,)—in a garden forget awhile this world, its turmoils and its cares, before they are summoned to quit it for a better.

Botany, like all other studies, requires for its successful pursuit some small share both of ardour and attention, but certainly much less than has been frequently supposed; not more, perhaps far less, than many collateral sciences would seem to demand. For we ask not that entire dedication of the mind which some abstract and speculative philosophers have claimed from those who offer to become their pupils; we only ask attention.

I think we hear too much by far of the rugged road to learning, too much of, "the steep where fame's proud temple stands," as if to deter, even whilst inviting, the timid yet ingenuous aspirant: the road, believe me, has many beauties in its course; the steep has many steps to ease its weary height; and they who have trod the path well know that it is not very rugged; they who have scaled the steep well know that it is not high; the one is rugged only to the slothful, the other steep to such alone as lie grovelling at the base. Let but the will be father to the deed, and then the deed is done. Tell me not of the student's midnight toil, I know it to be rather the midnight pleasure; for what time is ever so much enjoyed as that which, redeeming from perdition more truly than any other, we may call our own: what hours are ever so dear when present, so doubly dear to memory when past, as those in which we wake and work while others sleep.

Forgive me if I am wrong, perhaps I am too hasty in my conclusions, perhaps I generalize here on insufficient grounds, on too meagre an association of particulars. There may be, in studies foreign to my pursuits, difficulties that I know not of: it becomes me therefore, not to speak decidedly of other sciences, but to restrain my positive asseverations to my own: and yet if others truly tell of the thorny paths which lead to their shrines of knowledge, why then it must be confessed that we botanists alone of all are privileged to strew our way with flowers.

Mentha



Lipentia



Pulegium

MENTHA PIPERITA.—PEPPER MINT.

CLASS XIV. DIDYNAMIA.—ORDER I. GYMNOSPERMIA.

NATURAL ORDER, LABIATÆ.—THE MINT TRIBE.

Fig. (e) represents the calyx and pistil; (f) the corolla, with the stamens.

SEVERAL species of Mint are cultivated for medicinal and culinary uses. Of these the most important are Pepper Mint, *Mentha piperita*: Spearmint, *M. viridis*; and Penny-royal, *M. Pulegium*. They are all of them indigenous to Britain, and hardy perennials; well worthy the attention of those who love to look into flowery hedges,

“Or into the meadows where
Mints perfume the gentle aire,
And where Flora spreads her treasure.”

Pepper Mint grows wild in some parts of Britain, in watery places, and on the banks of streams, flowering in August and September; but it is not a common native plant. There are three varieties of this species; but the variety *a*, of Smith’s “English Flora,” is the one generally employed in medicine. The specimen figured was obtained from Mitcham in Surrey, where considerably more than one hundred acres of this herb are cultivated for the supply of the London market.

From a creeping rhizoma arises a stalk that is nearly erect, quadrangular, branched, and generally of a purplish colour, with short recurved hairs, to the height of two or three feet. The leaves stand opposite, on short footstalks, are of a dark green colour, ovate, serrated, acute, varying in breadth, smooth and shining above, and paler, with white and purple veins beneath; the leaves are never downy, but the middle rib, on the under side, is beset with short hairs. The spike-like thyrsus of flowers is solitary, bluntish, terminal, about the length of the leaves, interrupted and leafy below, with the lowest axillary cymes more distant, and sometimes spiked. The bractees are lanceolate and fringed. The flower-stalks are either perfectly smooth, or very slightly hairy above. The calyx is slender, furrowed, covered with pellucid dots; the base quite smooth, and five-cleft, with the teeth dark purple and fringed. The corolla is funnel-shaped, longer than the calyx, and of a purplish colour. The filaments are awl-shaped, straight, and shorter than the limb. The germen is four-lobed, superior, with a slender style, longer than the corolla, and terminated with a bifid stigma.

In external appearance, Pepper Mint corresponds with *Mentha viridis*, for which it may easily be mistaken; but in that the leaves are sessile, and narrower in proportion to their length; the thyrsi are longer, and composed of more cymes. “England,” says Sir J. E. Smith, “has already been known as the country of the true *M. piperita*. What supplies its place in the north of Europe, is merely a variety of *M. hirsuta*, having a similar odour; and this is named *piperita* in the Linnean herbarium.” Two varieties, a narrow-leaved and a broad-leaved, are cultivated in gardens, and some variegated kinds are considered as ornamental plants, particularly a reddish variety called Orange Mint.

MENTHA PULEGIUM.—PENNY-ROYAL.

Fig. (c) represents a perfect flower with the calyx removed; (d) the calyx and pistil.

PENNY-ROYAL* is a plant pretty generally known, being found every where on heaths in moist places, and flowering in September. Our figure was taken from a specimen growing by the side of a pond in Wimbleton Common; and on the same spot we also found *Acorus Calamus* and *Anthemis nobilis*.

The root of this plant is creeping. The stems are bluntly quadrangular, procumbent, downy at the upper part, and sending up erect, flowering ones to the height of eight or nine inches. The leaves are scarcely an inch in length, petiolated, ovate, obtuse, unequally serrated, with numerous pellucid dots, and slightly hairy underneath. The axillary cymes, which are supported on short, purplish stalks, are numerous, many-flowered, sessile, and of a pale lilac colour. The calyx is five-cleft, tubular, slender, nearly cylindrical, strongly furrowed, and clothed with short downy hairs; five-cleft, with the teeth unequal, pointed, and fringed. The corolla is longer than the calyx, externally hairy, of a light purple, and sometimes of a white colour. The stamens are erect, and longer than the corolla; the germen is four-cleft, with a slender style, furnished with a bifid stigma.

In its wild state, the plant trails upon the ground, and strikes root at the joints; but the markets are usually supplied with a garden variety, which is larger than the other, and grows nearly upright.

Many virtues are ascribed to mint by the ancients, but we are ignorant of the species to which they refer.

* It may not be improper here to mention, that the American plant, known by the name of Penny-royal, is entirely different from the Penny-royal of Britain, and belongs to a different genus, *Meibomia*.—See Barton’s *Vegetable Materia Medica* of the United States. v. ii. p. 168.

From the allegorical accounts given by the ancients of their mints, it would seem that they ascribed to them terrible effects, and such powers as are now not known to belong to any of the species; for the poets feign that Mintha, the daughter of Cocytus, was transformed into the plant which stills bears her name: our mint and Mentha being words but slightly altered from the Greek.

Pepper Mint possesses a greater degree of pungency than any of the other kinds. The leaves have a considerable degree of aromatic odour and taste; the flavour becoming pungent, followed by a sensation of coolness on the tongue. They afford an essential oil, rich in the aromatic quality and pungency of the herb, and holding camphor in solution.

Pepper Mint is used as a stimulant and carminative, to obviate nausea, or griping, or to relieve the symptoms arising from flatulence; and, very frequently, to cover the taste and odour of other medicines. It is used for these purposes under the forms of the watery infusion, the distilled water, the essential oils and the lozenge prepared from the oil or the essence, as it is called, formed by dissolving a small quantity in alcohol. Mr. Neill says, "the young leaves and tops of spear-mint are a good deal used in spring salads in England; they also form an ingredient in soups, or are more frequently employed to give flavour, being boiled for a time and withdrawn. They are also shredded down, and mixed with sugar and vinegar, as a sauce to roasted meat, particularly lamb."

OFF. PREP.—Aqua Menthæ Piperitæ. L. E. D.
Oleum Menthæ Piperitæ. L. E. D.
Spiritus Menthæ Piperitæ. L. E.
Infusum Menthæ Compositum. D.

Spear-mint and *Penny-royal* resemble the Peppermint in their qualities, but are less pungent.

Spear-mint is used for culinary purposes, and gives out its virtues both to water and alcohol: an essential oil is also obtained from it.

OFF. PREP.—Aqua Menthæ viridis. L. E. sativæ, D.
Oleum Menthæ viridis. L. D.
Spiritus Menthæ viridis. L.
Infusum Menthæ Compositum. D.

The directions for this infusion are; "Take of the leaves of Spear-mint dried, two drachms; boiling-water, as much as is sufficient to afford six ounces of infusion when strained. Digest for half an hour in a covered vessel; strain the liquor when cold, and add to it, of refined sugar two drachms; oil of Spear-mint, three drops, dissolved in half an ounce of compound tincture of cardamoms." It is a grateful stomachic, which may be used to obviate flatulence; or as a vehicle to cover the taste of unpleasant medicines. The infusions of the mints in warm water are more grateful stomachics than the ordinary cold distilled waters.

Penny-royal yields an essential oil containing a small portion of camphor. It was formerly used as an emmenagogue; and although it possesses no such virtues, the Aqua Pulegii, known by the name of "hysteric water," is still much employed by the vulgar. Like the other mints it is a carminative stimulant, but is seldom prescribed by medical practitioners.

OFF. PREP.—Aqua Pulegii. L. E. D.
Oleum Pulegii. L. D.
Spiritus Pulegii. L.

*The diseases of plants are often, although injurious to them, beneficial to man, while at other times their unhealthy conditions so far deprave and change the quality of their ordinary productions, as to render those which are usually wholesome and nutritious, either worthless, baneful, or even poisonous. The production of algalocum and the various kinds of galls and gums, are instances of vegetable disorders being serviceable to man, while the diseases of corn, such as the smut, canker, rust, &c., and especially the ergot, are familiar examples of the fearful havoc they make in our crops, the former rendering a harvest worthless, and the other converting our sustaining corn to poison. It must, however, be recollected that the ergot is, when properly administered, a most valuable medicine, and also that these apparently grievous evils are such only on a partial view; they are injuries only when particular instances are selected and isolated, for it is on all hands confessed that in the general economy of nature they are highly beneficial, as forming a part of the system of checks and counterchecks by which the balance is corrected when the strong overpower and would exterminate the weak, and preserve that equality which could not be otherwise maintained. To modify their influence, and protect ourselves from their injurious prevalence, is the duty of science, and the more the study of vegetable pathology is pursued, the greater will be the power we shall obtain of turning even these apparently malevolent incidents to our advantage.

BOTANICAL PHRASEOLOGY.*

ABBREVIATED.—Of two organs in comparison, the shorter is said to be abbreviated; an abbreviated calyx, a calyx shorter than the corolla.

ABORTIVE.—Barren; as a flower that falls without producing fruit.

ABRUPT.—Winged leaves that have no odd leaflet or tendril are said to be abrupt, or abruptly winged.

ABSORPTION.—The process by which vegetables take up their aliment, is termed absorption.

ACEROSE.—Linear and needle-shaped, as in the leaves of cone-bearing trees.

ACINI.—The distinct granulations of which the fruits called berries are composed.

ACINACIFORM.—Scimitar-shaped; having one edge thick and straight, the other thin and curved.

ACOTYLEDONOUS.—Plants whose seeds are either without or with indistinct lobes.

ACUMINATE.—Sharp-pointed; when terminating in a point.

ADNATE.—Adhering; applied to parts which appear to grow together.

ÆSTIVATION.—A term employed by Botanists to denote the manner of folding up of the parts of the flower, whether sepals, petals, or stamens, previous to their evolution in the progress of vegetation.

AFFINITY.—Vegetable affinity is that natural relation or connexion by which plants having the same form and structure of parts, are regarded as belonging to the same tribe, or class, or genus.

AGGREGATE FLOWER.—A flower composed of a number of minute florets, or floscules, contained within a common calyx, or inserted in a common receptacle, with the florets or peduncles, but the anthers not united, is an aggregate flower; as in *Dipsacus* or *Scabiosa*.

ALBUMEN.—The term albumen, as applicable to vegetables, has an acceptance both anatomical and chemical; for in its anatomical acceptance it signifies an organ which constitutes the bulk or farina of many seeds, as in the grasses, and often invests the embryo entirely, as in the palms and lilies; but in some tribes, as in the leguminosæ, it is altogether wanting. In its chemical acceptance it signifies a substance which is obtained from vegetable gluten when treated with alcohol, part of the mass is soluble, and takes the name of *Zimone*, the principle of leaven (Taddei), or retains that of gluten (Berzelius), and part of it is insoluble, and takes the name of gliadine (Taddei), or of vegetable albumen (Berzelius.) Hence gluten seems to be a compound of two substances as yet imperfectly known. *Raspail Chem. Organ.* 140.

ALBUMNUM.—The albumnum is the outermost and last formed layer of the woody portion of caudex of exogenous plants. It is the softest and the whitest of all the layers except, as they say, in the eagle-tree, *Aquilaria Malaccensis*, in which it is black. It owes its formation to the descent of the cambium, or elaborated sap, which is deposited as it descends, between the bark and albumnum of the former year. In the following year, it is the chief channel of the sap's ascent, for which, from its soft and succulent texture, it seems to be well adapted, but it remains in the state of albumnum only so long as it is the outer layer, the new layer that is formed above it, taking the name of albumnum in its turn, while the old albumnum, being now an inner layer, and no longer the main channel of vegetable juices, grows gradually harder and denser, and of a duller and deeper shade each succeeding year, till at last it is converted into what is called the duramen or heart-wood of the plant.

ALGÆ or FLAGS.—The term algæ, which is of Latin origin, and which we translate flags, seems primarily to have denoted any sort of plant or herb growing in sea water.

Yet botanists have extended its application to many plants that are not even aquatics, agreeing, however in the common character of having their herbage frondose and their frond for the most part without a distinct root.

ALTERNATE.—Leaves are so called when not in pairs, but given off one after the other.

ANGLED.—When a circumference has considerable projections which are not lobular.

ANNUALS.—Plants which spring from seeds, grow up and produce seed, and then decay and die, all in the course of a single year or season.

ANNULUS.—The annulus or ring is a term applied to designate a peculiar organ connected with fructification of certain tribes of plants, namely, Ferns, Mosses, Fungi, though it is neither of the same form in all of them, nor destined to the same function.

ANTHER.—~~The anther~~ is an organ belonging to the flower, being a small bag of viscus attached to the filament, and containing a fine powder. Its attachment is usually terminal, as in the Tulip, but sometimes it is lateral, as in Herb Paris. If the filament is altogether wanting, it is then placed immediately on the ovary or pistil, and is said to be sitting. The anther is the only essential part of the stamen; in this part there is a fine dust, called pollen or farina, which, when the anther is ripe and bursts, it is discharged upon the summit of the pistil, and fecundates the embryo seeds in the germen.

APETALOUS.—Absence of petals.

APOPHYSIS.—A globular bunch or protuberance, in which the pedicle of some of the Mosses terminates, and on which the capsule sits, as in the genus *Splachnum*.

APPENDICULATED.—Signifying something in particular attached to a part.

AQUATICS.—Plants growing in water.

ARBORESCENT.—Partaking of a woody nature, tree-like.

ARIL.—The aril, *arillus*, is a coat formed by expansion of the umbilical cord, and proper to an individual seed, which it invests as an appendage, either wholly or in part, though not adhering to it, closely, except by the base, and detaching itself at last spontaneously. It is elegantly exemplified in the outer and orange-coloured coat of the seed of *Evoynmus Europæus*, that presents itself so conspicuously to the eye when the valves of the capsule have opened. In this case it invests the seed wholly, and is hence said to be complete; but in others as in *Celastrus*, it invests the seed only in part, and is hence said to be dimidiate. It is usually of a membranaceous or leathery sort of a texture; but in *Evoynmus* it is somewhat succulent, and in a few species of *Orchis*, it is said to resemble a finely reticulated web, if this web is really an aril. In *Oxalis*, it is membranaceous and elastic, ejecting the ripe seed with considerable force. The mace which envelops the shell or internal pericarp of the nutmeg, is generally regarded by botanists as an aril; and this view of the subject seems to be sufficiently correct, because the organ in question, though not enclosed within the shell is yet enclosed within the external pericarp or ovary, and has its origin in the umbilical cord. The envelope of the seed of the *Carex* has been by some botanists transferred to the head of the aril also, and yet in this case the propriety of the transference may be doubted, because the organ in question includes not merely the seed, but also the ovary itself; and if not, the seed is without an ovary.

ARMATURE.—Many plants are furnished with special organs that seem destined as a defence to protect them from the attack of animals, as thorns, prickles, spines, stings. Such organs have been called their armature.

* For this we are principally indebted to Mr. Keith's Botanical Lexicon.

AWL-SHAPED.—**SUBULATE.**—Thick at the base, and gradually attenuated to a sharp point.

AWN.—**ARISTA.**—A terminating spine or appendage.

AXILLA.—The axilla or axil is the angle which the leaf-stalk forms with the upper part of the stem or branch, and which always contains a bud.

AXILLARY.—Situated or issuing from an axilla.

BARK.—The bark is the outer or external portion of the stem, encircling or enclosing the wood or pith.

BARREN FLOWERS.—Barren flowers are flowers that produce anthers but not pistils. Of this there are three cases; first, when flowers containing stamens only, and flowers containing pistils only, are produced on the same plant. In this case the plant is said to be monocious, as in *Corylus* and *Alnus*; secondly when flowers containing stamens only, and flowers containing pistils only, are produced on different plants. In this case the plant is said to be dioecious, as in *Humulus Lupulus*; thirdly when hermaphrodite flowers, and flowers containing stamens and pistils separately, are produced on the same plant. In this case the plant is said to be polygamous, as in *Atriplex*.

BEAK.—The beak is an appendage of the persistent style, elongated but not feathered. It is exemplified in the genus *Scandix* and several others of the umbelliferae.

BEARD.—The beard is a tuft of fine hairs or bristles, issuing in most cases, from the calyx or corolla, but sometimes, from the other parts of the flower also; as in *Thynus*, *Iris*, *Periploca*. The aggregate of the awns of an ear of barley, or of any other grasses, is sometimes called to beard.

BERRY.—The berry is a soft and pulpy pericarp, containing one or more seeds, but not separating into regular valves, nor enclosing a capsule. It is exemplified in the very familiar case of the Currant and Gooseberry.

BIENNIALS.—Biennials are plants living for the space of two years only, that is, if growing in their natural habitats and left to themselves. The Carraway, Carrot, and Celery are examples. The first year they fix themselves in the soil by the root, but send up no stem. The second year they send up a stem, produce flower and fruit, and perish. Thus they belong to the class of plants called monocarpous, that is, plants flowering or producing fruit but once. The production of the flower has exhausted their vitality, and numbered the days of their existence; restricting the annual to one year, the biennial to two years, and giving to others, as to *Agave Americana* and the *Talipot Palm*, an indefinite number of years. They owe their death to the process of their fructification, which, if retarded, prolongs, and if accelerated, shortens their existence. Wheat sown in the spring lives but six months; but sown in the autumn it lives twelve. Biennials put into situations unduly warm become annuals; put into situations unduly cold, they become triennials. The *Agave Americana* in its native climate flowers after a period of only four or five years, but in the climate of England it does not flower till after a period of fifty or of a hundred years. Thus the terms of the duration of these plants may be either abridged or protracted by the contrivances of art.

BIGEMINATE.—Twice paired. In compound leaves, when near the common leaf-stalk there is a single pair of secondary leaf-stalk, each of which support a pair of opposite leaflets.

BILABiate.—Having two lips.

BILOCULAR.—Having two cells.

BINATE.—Applied to a compound leaf consisting of two leaflets only, inserted at the same point on one leaf-stalk.

BIPINNATE.—In compound leaves, when the secondary leaf-stalks are arranged in pairs on the common leaf-stalk, and each secondary leaf-stalk is pinnate.

BITERNATE.—In compound leaves, when the common foot-

stalk supports three secondary leaf-stalks on its apex, and each of these support three leaflets.

BITTEN ROOT.—The bitten or truncated root is a root tapering gradually, like the spindle-shaped root, but terminating abruptly, as if the extremity were cut or bitten off. It is exemplified in the plant called devil's-bit, or devil's-bit Scabious.—*Scabiosa Succisa*.

BOYAUX.—A term introduced by M. Adolphe Brongniart, to denote the tubes that issue from the grains of pollen upon their contact with the stigma, and descend through the style by elongation, till they reach the ovary, carrying with them the *matériel*, or principle, of fecundation. In the books of English writers they are usually called pollen tubes.

BRACETE.—The bracte is a floral leaf situated on the peduncle or common axis of the fructification, and often so near to the flower as to be mistaken at first sight for its calyx. This is particularly the case in the genus *Nigella* and some species of *Helleborus*, in which, however, it is known not to be a calyx, from its protracted duration, which is generally equal to that of the other leaves of the plant; whereas the calyx either fades with the flower, or, at the latest, when the fruit has reached maturity. But though the bracte is situated for the most part on the stem or peduncle, yet there are cases in which it is situated also on the calyx as in several species of *Mussenda*. (*Smith's Introd.* 222.) and even on the fruit itself, as in *Mespilus Germanica*, and some of our varieties of Pears. (*Keith's Phil. Bot.* ii. 294.)

BRANCHES.—The branches are the divisions of the trunk or caudex ascendens, originating generally on the upper extremity, but often also along the sides. The primary divisions are again sub-divided into secondary divisions, and these again into still smaller divisions, till they terminate at last in slender twigs.

BRISTLES.—Bristles are short, stiff, and sharp-pointed hairs, with which the stem and leaves of certain species of plants are densely crowded, as those of *Borage* and *Viper's Bugloss*.

BUDS.—Buds are small and ovate or conical-shaped structures issuing from the axil of the leaves or the extremity of the branches, and containing the rudiments of future branches, leaves, or fruit, but not detaching themselves spontaneously from the plant, and forming new individuals.

BULB.—Bulbous roots are those which consist of one globe or head, from the under surface of which many fibres descend. They are of three kinds; in the *Crocus sativus*, solid; in the *Scilla maritima*, scaly; and in the *Allium Cepa*, coated.

BUNCHES OR TUMOURS.—Bunches or tumours are partial and irregular enlargements of the organs of the vegetable body, affecting the root, stem, branch, bud, leaf; and disfiguring but not always injuring the plant. They are very generally caused by the puncture of insects in the depositing of their eggs.

CADUCOUS.—Applied to leaves falling off before the end of the summer; to corollas, continuing only until expanded; and to calyces, falling off at the opening of the flower.

CALYCINE.—Attached or belonging to the calyx.

CALYCLATE.—Applied to calyx, when there is a lesser one at the base of the great one.

CALYPTRA.—The calyptra or veil, is a fine and membranaceous integument in the shape of a hollow cone or extinguiser, that marks the urn-shaped capsule of the mosses to the summit of which it is attached.

CALYX.—The calyx, an appellation borrowed from the Greek term *καλύξ* which signifies an unexpanded blossom or its covering—is the exterior envelop of the flower—that is, where two envelopes are present—encompassing and protecting the interior parts. It may be perceived very distinctly in a Rose not yet fully blown,

or in a Poppy beginning to open. Yet it is not to be regarded as absolutely essential to the idea of a flower. For many flowers have no envelope whatever. But in the flowers of perfect plants the calyx is very generally present under one modification or other;—namely, that of the flower cup, the glume, or scale.

CAP, OR PILE.—Of the Stipitate Fungi a great many are furnished with a sort of conical or flattened production surmounting the stipe, and attached to it at right angles, sometimes by the centre, and sometimes by the one side. This production has obtained the appellation of the cap or pileus, which its figure suggests, and may be exemplified in *Agaricus campestris*, the true Mushroom.

CAPILLARY.—Applied to parts when they are long, fine, and flexible.

CAPSULE.—The capsule is a dry and membranaceous pericarp, opening, when ripe, in some definite and determinate manner, but separating, for the most part, into valves. It is one valved, as in *Primula*; two-valved, as in *Circea*, many valved as in *Oxalis*, or without valves as in *Fraxinus*.

CARINA.—The carina, or keel, is a term employed by botanists, to denote the lower petal of the corolla of a papilionaceous flower, from its resemblance to the carina or keel of a boat.

CARINATED.—Expressive of leaves and petals, when the back is longitudinally prominent like the keel of a boat.

CARPELLUM.—Upon the morphological principles of Goethe, for a time contemned and neglected, but now adopted and illustrated by the most eminent of modern phytologists, Decandolle, Brown, Du Petit, Thonars, and others—the pistil of every flower is to be regarded as being but a leaf metamorphosed into an ovary with its accompaniments. The expansion of the leaf, by the union of its margins rolled inwards, forms the ovary, the mid-rib extended and expanded to a due length and thickness, forms the style, and its “denuded secreting, and humid apex,” forms the stigma. The leaf thus metamorphosed, is a *carpellum*, and where there are more pistils than one to a flower, they spring from a whirl of leaves, and are *CARPELLA*, each having its own style and stigma, and each being furnished with a *placenta*, originating in some point of the ventral suture. *Lindley's Introd. to Bot.* 144.

CARUNCLES.—Caruncles or strophioles, are small and fungous lumps, or tubercles, situated near the umbilicus of certain seeds. The genus *Euphorbia* furnishes a curious example of a caruncle that covers the foramen.

CARYOPYSIS.—By this term botanists denominate a peculiar species of pericarp, dry, indehiscent, one-celled, one-seeded, superior, and adhering inseparably to the proper integument of the seeds, as in *Ptychium*.

CATKIN.—The catkin is a species of inflorescence, consisting of an assemblage of incomplete flowers, that is, flowers destitute of calyx, or of corolla, or of both, but furnished with a scale-like bract, which attaches them to a common and elongated receptacle. It was regarded formerly by Linnæus and many of his followers as a species of calyx, but we believe that no botanist regards it now in that light. It is exemplified in the very familiar cases of the inflorescence of the Birch and Willow.

CAUDEX.—The term caudex seems to have been employed by the Latin classics to signify merely the stem or trunk of a tree. Linnæus employed it to denote the main stock or axis of the plant, as resulting from the full growth and development both of the radicle and of the plumetel. Hence it is divisible into two distinct portions, the *caudex ascendens*, and the *caudex descendens*, the former corresponding to the trunk or stem, the latter to the root.

CAULINE.—Springing from, or attached to the stem.

CELLULAR TISSUE.—The cellular tissue or pulp, is a soft and succulent substance, constituting the principle mass of herbaceous plants, and a notable proportion of many parts even of woody plants.

CELLULARES.—This term, which is nearly equivalent to the Cryptogamia of Linnæus, or to the Acotyledones of Jussieu, is now very generally employed by botanists to denote the first branch of that grand and primary division of vegetables, by which they are distributed into plants, composed merely of cells on the one hand, and plants composed both of cells and vessels on the other.

CENTRIFUGAL INFLORESCENCE.—If the main axis of the inflorescence of any particular species, terminates in a flower, while the other flowers issue from lateral buds, originating in the axil of inferior leaves or bracts, and producing a branch or peduncle that carries them from the centre outwards, then the inflorescence of that species is said to be centrifugal, as in the case of the genus *Euphorbia*, and the upper flowers are the first to expand.

CENTRIFISTAL INFLORESCENCE.—If the main axis of the inflorescence of any particular species is furnished with a connected succession of flowers, originating directly in the axis, but without bracts, as in the catkin of the Hazel, or raceme of the Currant, so that the flowers are developed from the circumference inwards, then, the inflorescence of that species is said to be centripetal, and the flowers at the base are the first to expand.

CHANNELLED.—Applied to leaves, stalks, or petioles, having grooves or longitudinal furrows on their surface.

CHROMULE.—The pulp constituting the parenchyma of the leaves was at one time designated by the appellation of *viridine*, because it is generally of a green colour; but as it is not always of a green colour, M. Decandolle has thought it better to apply to it the appellation of Chromule, indicating that it is the substance from which the leaf or flower derives its colour, whether green or otherwise. It is certain that the membrane composing the cells has no colour but what it borrows from the contained pulp, which has itself no colour till it is exposed to the action of the direct rays of the sun, elaborating the nutriment that it derives, whether from the ascending sap, or from the decomposition of carbonic acid gas, or from the direct assimilation of Oxygen.

CILIATED.—When parts are covered with soft parallel hairs, not closely set together.

CIRROSE.—CIRCINATE.—Tipped with a cirrus or tendril.

CLAW.—The base or lower portion of the petal of a poly-petalous flower is denominated the claw. In some flowers it is extremely short, serving merely as a point of attachment to the receptacle, as in the Rose, in others it is long and conspicuous, as in the Pink.

CLEFT.—Divided into parts, as, two-cleft, four-cleft, and so on.

CLIMBING STEMS.—Climbing stems are stems which attach themselves by means of roots, or of other peculiar organs, to other plants or to other bodies for support, not being of themselves sufficiently strong to assume, or to maintain the upright position, such are the stems of the Vine and Ivy.

CLÔSTRES.—The spindle-shaped tubes of Dutrochet, whose office it is to conduct the descending and elaborated sap or cambium.

CLOVEN.—When the margin or segments of any part are nearly straight lines.

CLUBBED.—When parts are thicker towards their extremities than in the centre.

CLUSTER.—A species of inflorescence, consisting of an assemblage of flowers, supported upon their own proper pedicles, and attached to a common and elongated axis, it is exemplified in the Currant.

COLUMN.—Within the urn or capsule of the mosses, and in the direction of its longitudinal axis, there is situated a slender and cylindrical substance, which seems to be a prolongation of the pedicel. This organ is denominated the column, and its summit, which surmounts the urn, was regarded by Kedwig, as the style of the mosses.

COMPLETE FLOWERS.—A simple flower furnished with both calyx and corolla, is called a complete flower, as in *Datura Stramonium*.

COMPOSITE ORGANS.—Vegetable organs, which are resolvable immediately into organs deemed elementary, and which may be regarded as exhibiting the first degree of complexity, are said to be compound or composite. The ligneous and the cortical layers, the pith and the epidermis are examples.

COMPOUND FLOWERS.—Compound flowers consist of numerous florets, all sessile or seated on a common undivided receptacle, and inclosed in one continuous calyx. It is also essential to this kind of flower, that the anthers be united into the form of a cylinder. The *Leontodon Taraxacum*, *Tussilago Farfara*, *Anthemis nobilis*, and others, have compound flowers.

CONCENTRIC LAYERS.—The concentric layers of the vegetable structure, are peculiar to plants of exogenous growth, and are either cortical or ligneous.

CONJUGATE.—Applied to leaves consisting of one pair of leaflets

CONNATE.—When leaves are united at their base, so as to appear but one leaf.

CONNECTIVUM.—The organ that unites the two cells of the anther, is denominated the connectivum.

CONSERVATIVE ORGANS.—Organs whose functions regard merely the growth and health of the plant, as opposed to those which regard the re-production of the species, are by some physiologists denominated conservative organs. Mr. Burnett calls them nutritics.

CONSUMPTION.—From barren or improper soil, unfavourable climate, careless planting, or too frequent flowering, which exhausts the strength of the plant, a diseased state of organs is often induced, with gradual wasting away of vitality, which terminates ultimately in the death of the individual. It is with sufficient propriety denominated consumption. The Pine tree is liable to an affection of this sort that is known by the name of *Teredo Pinorum*. *Willd. Prin.* 351.

CONTORTION.—The leaves of plants are often injured, by means of the puncture of insects, particularly of the genus *aphis*, so as to induce a sort of disease that discovers itself in the irregular convolution of the leaf, punctured in the wrinkled aspect of its upper surface, this is the disease called contortion.

CORDATE.—Heart-shaped, when a leaf is hollowed at the base into two lobes and pointed at the apex.

CORIACEOUS.—When a part is thick, tough, and elastic.

CORMUS.—That portion of a bulb, having the figure of a flattened disk, or of a depressed cone, which remains with the radical fibres attached to it, or protruding from it, after the coats or scales have been stripped off, is by most of our modern botanists, denominated a cormus. It is equivalent to the Plateau of M. Decandolle, and is all that many bulbous plants have to show for a stem. Dr. Lindley restricts its application to what has been called a solid bulb, which appellation he would discard entirely from the language of botany.

COROLLA.—The corolla is the interior envelope of the flower,—that is, where two envelopes are present,—investing the central parts, and invested by the calyx. It is generally of a finer and more delicate texture than the calyx, and is of all the parts of the fructification the most showy and ornamental,—being always, or with few exceptions, that which is the most highly coloured, as well as that from which the flower imparts its rich and fragrant perfumes—its *crocus odores*—

delighting at the same time both the sight and the smell. To this most elegant part of fructification, the term corolla has been very happily applied by Linnaeus, signifying, as it does in the original, a crown or chaplet of flowers.

COTYLEDONS.—The cotyledons or seed lobes are appendages of the embryo, enclosing or accompanying the tender plantlet, and containing its first nutriment.

CORYMB.—A species of inflorescence in which the peduncles issue at different points of a common and longitudinal axis; but the lower ones being longer, the flowers still exhibit a flat and level surface, as in *Pyrus aucuparia*.

CRENATE.—When the margin of a leaf is notched in round forms, not directed to either end of the leaf.

CRENULATED.—When the crenatures are very shallow, and at the same time perfect.

CRYPTOGAMOUS PLANTS.—Plants whose organs of fructification are not visible except through the aid of glasses are said to be cryptogamous. They constitute the last class of the system of Linnaeus, and the first of the system of Jussieu; the cryptogamia of the former, the acotyledones of the latter.

CUCULLATED.—Hooded. When one part grows over another, so as to form a hood or covering.

CULM.—The stalk or stem of the grasses is the culm of botanists. It is jointed and hollow, as in wheat and oats; or without joints, but containing a pith, as in *Juncus effusus*.

CUPS AND SAUCERS.—On the thalia or fronds of the Lichens there are generally to be found certain organs containing a powdery substance, analogous to the pollen or to the seeds of perfect plants. These organs, from the forms which they assume, have been called by various names, shields, targets, warts, tubercles; or more vulgarly, cups and saucers.

CURTAIN OR VEIL.—Of the cap-bearing fungi, the greater part are furnished with a fine, delicate, and cobweb-looking membrane, called the veil, or curtain, attached on one hand to the circumference of the pileus, and on the other to the circumference of the stem, enclosing and protecting the gills. It may be very distinctly seen in the common mushroom, at an early period of its growth.

CUSPIDATE.—MUCRONATE.—Terminating in a rigid spine.

CYME.—The cyme or tuft, is a species of inflorescence, somewhat resembling the umbel, as in *Viburnum Opulus*.

DECOMPOSITE ORGANS.—If compound organs are divisible into component organs which are themselves compound, they are said to be decomposite, as exhibiting the highest degree of organic complexity. Thus the root, trunk, and branches are decomposite organs, as consisting of bark, wood, and pith, which are themselves compound or composite organs, in a lower degree.

DECIDUOUS.—Applied to parts which fall off after they have performed the offices for which they are destined.

DECURRENT.—When the flat part of a leaf runs down the stem or branch.

DECUSSATED.—Parts in pairs alternately crossing each other.

DEGENERATION.—In morphology, when an organ is not completely suppressed by abortion, but only imperfectly developed or peculiarly modified, it is said to have come so by degeneration; as in the case of stamens changing to leaves, or to glands.

DEHISCENT.—Some fruits or pericarps, when mature, open of their own accord, and discharge the seeds; and such are said to be dehiscent.

DETACHED CALYX.—When the calyx includes the ovary without adhering to it, it is said, in the language of botanists, to be detached, hence the detached calyx is the same with the inferior calyx.

DICHO TOMOUS.—Divided into two branches.

DICOTYLEDONOUS.—Plants whose seeds have two or more cotyledons.

DIOECIOUS PLANTS.—Plants having their male or stamiferous flowers on one individual, and their female or pistiliferous flowers on another, are said to be dioecious—that is, to have their flowers in two houses. They are exemplified in Hemp, Spinach, Hops.

DIGITATE.—When several, usually seven leaflets, proceed from the summit of a common foot-stalk, and have the appearance of fingers.

DIPETALOUS.—Corolla formed of two petals.

DIPLOË.—The interior parenchyma that lies between the upper and under layers of the net work of the leaves, is by some botanists called the *diploë*—a term borrowed from the Anatomical nomenclature of the zoologist, signifying the cellular substance that is lodged between the tables of the flat bones.

DISK.—In the language of the followers of LINNÆUS, the disk denotes the central portion of the receptacle of such compound flowers as have florets of the ray different in shape from those of the centre. In the language of the followers of JUSSIEU it denotes certain peculiar substances situated, for the most part, between the base of the ovary and the base of the stamens, and in the form of a fleshy ring, or of fleshy lobes as in *Lanium*, in which case it is hypogynous; or assuming the form of a cup, and adhering to the calyx, as in *Amygdalus*, in which case it is perigynous; or surmounting the summit of the ovary, as in the *Umbelliferae* and *Compositæ*, in which case it is said to be epigynous.

Lind. Introd. 137.

DISSEPIMENTS.—Dissepiments are the partitions that form and separate the several cells of the compound fruit or ovary.

DISTICHIOUS.—Applied to stems, leaves, &c. when they spread in two horizontal directions.

DIVERGENT LAYERS.—The divergent layers, proper to exogenous plants, they intersect the concentric layers in a transverse direction, proceeding from the centre to the circumference of the stem or branch, and constitute a considerable proportion of the wood, as may be seen on a horizontal section of the *Fir* or *Birch*, or of almost any woody plant, under the form of lines, diverging like the radii of a circle.

DOLABRIFORM.—Hatchet-shaped, leaves compressed, with a very prominent dilated keel, and a cylindrical base.

DRUPE.—The drupe is a fruit, consisting of a soft and pulpy pericarp, that encloses a nut, as the peach or cherry.

DUCTS.—The *fusces trachæes* of Mirbel, the *tubes corpusculifères* of Dutrochet, the *vaisseaux lymphatiques* of Decandolle, and the sap vessels of Grew and others, are all classed by Professor Lindley, under the denomination of ducts; which are scarcely allowed to be vessels, and yet they are vessels after all. Some are annular, some are reticulated, some are dotted, and some akin to spirals. We do not see that any particular advantage results from regarding them in this light. A dotted duct is a doubtful spiral; or it is a genuine spiral according to Kiesser, or, rather, it is a mere succession of cylindrical cells, according to Professor Lindley.

DURAMEN.—The several zones of wood, which are successively added to the trunk of exogenous plants, though at first colourless, acquire with age a deeper tinge, and are converted into what is called the duramen or heartwood of the plant. The colour differs much in different species. In the Oak it is of a deep brown; in Guaiacum it is green, and in Ebony it is black.

E OR EX.—In the composition of botanical terms, is merely the *e* or *ex* of the Latins, expressing negation, as *eductulose*, without ducts, *eastipulate*, without stipules.

ELABORATION.—Elaboration is the process by which aliment, after being absorbed or inhaled by the root or by the leaf, is depurated and prepared, by the proper organs for final assimilation.

ELLIPTICAL.—Oval. When a leaf is twice as long as it is broad and nearly equally rounded at the extremity.

EMARGINATE.—When there is nearly a triangular notch, in the summit of the leaf.

EMBRACING LEAF.—A leaf, the base of which invests the stem or branch on which it grows, is in the language of botany, an embracing leaf.

ENDOCARP.—The endocarp is the putamen or shell, immediately investing the seed or kernel of stone fruit.

ENDOGENOUS.—Plants whose growth is affected by increments added to the centre, as in the case of the Palms, are said to be endogenous. They are all Monocotyledons.

ENDOSMOSE.—A term introduced by M. Dutrochet, signifying a rush inwards, as applicable to the strong impulse by which a less dense fluid passes through animal or vegetable membrane, to a more dense fluid, and hence, applicable to the impulse by which the moisture of the soil enters the spongiolæ of the root.

ENSIFORM.—Sword-shaped. When a leaf is long, tapering to a point, very thin on both edges, and slightly curved.

ENTIRE.—The margin of any part is so called when perfectly free from notches, or irregularities.

EPICARP.—The epicarp is the external cuticle of stone fruit.

EPIDERMIS.—The epidermis, a term borrowed from the anatomy of animals, is the external envelope or integument of the plant, extending over its whole surface, and covering the root, stem, branches, leaves, flower, and fruit, with their appendages, excepting only the summit of the pistil, and surface of the spongiolæ. But although it is thus extended over almost the whole surface of the plant, it is not of the same tenuity throughout. In the root and trunk, it is a tough and leathery membrane, or it is a crust of considerable thickness, while in the leaves, flowers, bud, scales and tender shoots, it is a fine, colourless, and transparent film, not thicker than a cobweb. It is colourless however, only when detached, for when adherent, it assumes the colour of the parts immediately beneath it. Hence the green colour so prevalent in the leaf and tender shoot, and the beautiful variety of hues, displayed in flowers and fruits.

EPIGYNOUS.—Stamens that originate apparently in the ovary or pistil, as in the natural order of the *Orchideæ*, are said to be *epigynous*.

EPIPETALOUS.—Stamens that originate apparently in the petals as in the genus *Veronica*, are said to be *epipetalous*.

ERGOT.—The most mysterious of all the maladies attacking the cereal grasses, is that of the *Ergot* or *Spur*. It is a firm, compact, and horn-like substance, white or grey within, and black, with a tinge of violet, without. It issues from between the glumes, and occupies the place of the grain; or it is a prolongation of the grain, grooved and furrowed, and elongated to the extent of an inch. It is found most frequently on rye, but on almost all grains, particularly in barren soils. Mr. Francis Baer seems to have regarded it, as being merely a morbid swelling of the ear, not at all connected with the growth of a Fungus. *Smith's Introd. 348.* But Decandolle, who has investigated the subject more recently, maintains that it is a parasitical Fungus, to which he gives the name of *Sclerotium Clavus*. *Phys. Veg. iii. 1457.*

EROSE.—Irregularly notched, having the appearance of being gnawed.

ETIOLATION.—Plants are liable to a morbid or diseased affection, originating in various causes, which entirely destroys their verdure, and renders them pale and sickly. This is called *etiolation*—the *dioleum* of French writers, and may arise merely from the want of agency of light, or of the due evolution of oxygen, as may be seen in the case of plants placed in dark rooms, or between great masses of stone, or in the clefts of rocks, or under the shade of large trees. It may also

ensue from the depredation of insects, nesting in the radicle, and consuming the nutriment of the plant, and thus debilitating the vessels of the leaf, so as to render them insusceptible to the action of light; or it may arise from poverty of soil.

EXCITABILITY.—One of the most distinguishable properties of living vegetable structures, is that of their excitability, or capacity of being acted upon by the application of natural *stimuli* impelling them to the exertion of their vegetative powers; the natural *stimuli* thus impelling them being light and heat.

EXCENTRIC.—The embryo is said to be excentric when it is enclosed within the albumen, but not in the centre of it, as in asparagus.

EXOGENOUS.—Plants whose growth is affected by increments added to the circumference, are said to be exogenous. They are all dicotyledonous. But what are we to say of the growth of the primary shoot of the dicotyledonous seedling, or of the annual shoot of the fully developed plant? and to what previous circumference does it add a new layer? This subject requires to be further investigated.

EXTERNAL STRUCTURE.—The external structure of vegetables is that part of their fabric which is discoverable by outward inspection, as the root, stem, bud, branch, flower, and fruit; all which organs form the ground of articles in their proper places.

EXOSMOSE.—A term introduced by M. Dutrochet, signifying a rush outwards, as applicable to the weaker impulse by which, through means of a current counter to that of endosmose and simultaneous with it, a more dense fluid passes through animal or vegetable membrane to a less dense fluid, and hence applicable to certain peculiar movements occurring in vegetable economy.

EXTRACT.—When vegetable substances are macerated in water, a considerable portion of them is dissolved; and if the water is again evaporated, the substance held in solution may be obtained in a separate state. This substance is denominated *extract*, though it must differ much in different plants. Vauquelin tried to reduce it to a single principle—the extractive; but as it was after all believed to be merely a mixture of various vegetable ingredients, it has ceased to be a leading object of chemical investigation.

FACE.—"That side of a seed which is most nearly parallel with the axis of a compound fruit, or the ventral suture or sutural line of a simple fruit, is called the *face*, and the opposite side the back." Where the raphé is visible it indicates the *face*. *Lincl's. Introd.* 181.

FAMILY.—A family is an assembly of allied genera, whose structure and disposition of parts are founded on the same symmetrical plan, and whose external part or habit indicates their affinity; the Mushroom, the Mosses, the Grasses, the Palms.

FASCICLE.—The Fascicle is a species of inflorescence similar to that of the corymb, but having its peduncles more crowded and condensed so as to form a sort of compact bundle. It is exemplified in *Dianthus*.

FASCICULATED.—When several leaves or flowers spring from the same point.

FECLIA.—A term synonymous with starch.

FENCE.—The fence is the calyx or involucre of mosses—*perichæcium*—being an assemblage of loosely imbricated scales terminating in a fine hair or bristle, and surrounding the female flower. It is particularly conspicuous in the genus *Hypnum*.

FERTILE FLOWERS.—Flowers containing pistils only are said to be fertile, because they produce seeds, in contradistinction to flowers containing stamens only, which are said to be barren, because they produce no seeds.

FIBROUS.—The fibrous or capillary root, consists of a number of small and thread like fibres, one of which generally central, and the rest lateral.

FILAMENT.—The filament is that portion of the stamen which supports anther, and attaches it to the receptacle. Yet it is not always thread-shaped, as the name might lead us to suppose. In some species it is awl-shaped, in others it is club-shaped, and in others, as in *Nymphæa*, it is petaloid, that is expanding like a petal.—Nor is it universally present, as forming essentially a part of the flower; for some anthers are sessile, and consequently without filaments. The filaments are usually distinct, but they are sometimes united into one or more sets, and are hence said to be monadelphous, diadelphous, or polyadelphous.

FILIFORM.—Thread-shaped.—Having a thread-like appearance.

FLORAL LEAVES.—A floral leaf is only another name for the *Bracte*.

FLORETS.—The individual flowers of which a compound or aggregated flower is composed, are denominated florets or floscules. In the composite they are ligulate or tubular. The latter are the florets of the disk; the former of the ray.

FLOWER.—The flower, which, like the leaf, belongs to the division of the temporary parts of the plant, is a production that issues generally from the extremity of the branches, but sometimes also from the root, stem, and even leaf, being the apparatus destined by nature for the generation of the future fruit, and being distinguished for the most part, by the brilliancy of its colouring, or sweetness of its smell.

FLUX OF JUICES.—When the sap ascends more copiously than it can be carried off, it often occasions a fissure of the solid parts, inducing disease or deformity, by encouraging the extravasation and corruption of the contained fluid, or a morbid flux of juices. The fissure is sometimes occasioned by frost, forming what is called a double albumen; that is, first, a layer that has been injured by the frost, and then a layer that passes into wood. But a cleft thus occasioned often degenerates into a chilblain that discharges a blackish and acrid fluid, to the great detriment of the plant, particularly if it is so situated that rain or snow will readily lodge in it. The sooner a remedy is applied to it the better, for it will not heal itself; and the only remedy yet known is the excision of the part affected, and the application of a coat of grafting wax. *Willdenow*, 353, *Eng. Trans.*

FOLIATION.—The peculiar mode in which the incipient leaves are folded up within the leaf-bud is designated by the term foliation or vernation.

FOLIOLES.—Folioles, a diminutive from folium, a leaf, is a term sometimes used to denote the leaflets of winged or compound leaves. They are opposite or alternate ending abruptly or with an odd leaflet.

FOLLICLE.—A membranous seed-vessel of one valve and one cell.

FORAMEN.—A term introduced by Grew, to denote a perforation that is generally visible on the testa, or outer coat of the seed. It is the micropyle of Mirbel, and is always to be found facing the radicle of the embryo.

FOX-TAIL ROOT.—If a woody root finds its way into water, it is apt to protrude thousands of fine filaments from an elongated axis, assuming in aggregate the appearance of the tail of an animal. It has been called the Fox-tail root.

FRINGE.—The *peristomium*, or border of the mouth of the urn of the mosses, if ciliated, is denominated the fringe.

FRACTURE.—If a tree is bent so as to break part only of the cortical and woody fibres, and the stem or branch but small, the parts will again unite by being put back into their natural position, and well propped up, but especially in the season of spring. Yet it will not succeed if the fracture is accompanied with contusion, or if the stem or branch is large, and even where it succeeds, the woody fibres do not contribute to the union, but the granular and herbaceous substance only, which exudes from between the wood and liber, insinuating itself into all interstices, and finally be-

coming indurated into wood. Thus it resembles the callus that is formed in the union of broken bones.

FROND.—The frond is to be regarded as an union or incorporation of leaf, leaf-stalk, and branch, or stipe, forming as it were but one organ, of which the constituent parts do not separate spontaneously from one another by means of the fracture of any natural joint, as in the case of real leaves, but adhere together even in their decay. It is exemplified in the tribe of Ferns.

FRONDESCENCE.—The leafing of plants was denominated by Linnaeus, their frondescence.

FRUIT.—In the progress of fructification, when the several organs of the flower have discharged their respective functions, the petals, the stamens, the style, and often also the calyx, wither and fall. The ovary alone, remains attached to the plant, and swells and expands till it reaches maturity. It is now denominated the fruit. In popular language it is confined chiefly to such fruits as are esculent, as the Apple, the Peach, and the Cherry, but with the botanist, the matured ovary of every flower, together with the parts contained, constitutes the fruit.

FRUTEX.—If a woody plant begins to send up its branches immediately from the surface of the soil, without attaining to any great height, and without a main stem, it is designated by the term frutex, which signifies a shrub.

FUNICULUS.—If the ovulum is attached to the placenta by means of a small thread, that thread is called the *funiculus umbilicalis*, or the umbilical cord.

FUNNEL-SHAPED.—Funnel-shaped, or infundibuliform, having a conical border rising from a tube, as in *Nicotiana Tabacum*.

FURROWED.—Having several linear depressions.

GANGRENE.—Of this disorder there are two varieties, the wet and the dry. In the wet gangrene the diseased part becomes first soft and moist, and then dissolves into a foul ichor. It is confined chiefly to leaves, flowers, and fruit. It may arise from too wet or too rich a soil, or it may originate in contusion, as in the case of Peaches and Apricots. The dry gangrene attacks the leaves and young shoots, causing them to shrink and to shrivel up, and converting them from green to black. It may be occasioned by excessive heat, or by excessive cold, as in the case of young potatoe-tops nipt by morning frosts; or it may be caused by the too rapid growth of a particular branch, or by means of the attacks of parasitical fungi, as in case of the bulbs of saffron, which are often infested by a species of *Lycoperdon*, that totally destroys them.

GAPS.—Gaps, according to Mirbel, are empty, but often regular and symmetrical spaces formed in the interior of the plant by means of a partial disruption of the membrane constituting the tubes or cells. They are equivalent to what Kiessler calls air cells.

GEMS.—Gems, from the Latin term *gemma* a bud, are organized productions issuing from the surface of the plant, and containing the rudiments of new and additional parts which they protrude, or of new individuals which they constitute, by detaching themselves ultimately from the parent plant, and fixing themselves in the soil. According to Gærtner they are of two sorts, simple and compound,—simple, if furnished with only one envelope,—compound, if furnished with two or more envelopes. The latter includes the bud and bulb; the former the *Propago* and *Gongylus*, equivalent to the spores or sporules of modern botanists.

GENERA.—What species are to individuals, genera are to species. A species is a group of individuals connected together by certain obvious and unequivocal resemblances in the form and structure of their several organs, but differing, by some striking and peculiar trait, from all the other groups of allied individuals

that may happen to belong to the same genus. Thus *Primula elatior* is distinguished from *Primula veris*, merely by a peculiarity that occurs in the border of the corolla. In the former the border is flat, in the latter it is concave. A genus is a group of species connected together by certain obvious and unequivocal resemblances in the form and structure of their several parts or organs, but differing, by some striking and peculiar trait, from all the other groups of allied species that may happen to belong to the same order. Thus the genus *Malva* admits only such species of *Malvaceæ* as have the exterior calyx trisepalous; excluding all such as have it merely three-cleft, which it assigns to *Lavatera*. Yet the limits of genera are not so well defined as those of species. Hence it has been generally held that species are absolutely and indubitably the work of nature; while genera and the higher divisions have been regarded by many as being merely conventional groups instituted for the purpose of facilitating arrangement. Still the resemblance must be close and striking. Tournefort was the first to construct and exhibit good and legitimate models of generic grouping. Linnaeus improved upon the principles of Tournefort, and laid down a number of valuable rules for the construction of genera, drawing his characters from the fructification only,—an example which modern botanists have pretty generally followed, or departed from only in some rare cases, admitting that the character does not form the genus, but the genus the character. *Philos. Bot.* 119.

GENICULATED.—Expressive of parts bent like a knee.

GERM.—The embryo of the seed is sometimes called the germ of the seed; and the plural of the term was used formerly by DuRoi, to signify those latent and rudimentary molecules which he regarded as being dispersed throughout the whole of the plant, for the purpose of giving origin to buds, whether of root or of branch, wherever buds were wanted, and which he denominated pre-organized germs.

GERMEN.—This term which was introduced by Linnæus, seems to be now superseded by that of the term ovary, the base of which it was intended to designate.

GIBBOUS.—When both parts of a side are convex.

GILLS.—The under surface of the pileus of the Fungi is furnished for the most part, with a number of thin and flat laminae, which are attached to it at the one edge, and distributed like the radii of a circle. They are designated by the name of the gills. Sometimes they are inserted separately, and sometimes in pairs or sets, and sometimes they inosculate and grow into one another. They assume different shades of colour in different species, but in *Agaricus campestris*, they are of a beautiful pink. Of Fungi not having gills, some are furnished with a multitude of pores or tubes, as in *Boletus*, or with prickles, as in *Hydnum*.

GLABROUS.—Applied to stems and leaves, when shining and perfectly smooth.

GLANDS.—Glands are small and minute productions of various different forms, found chiefly on the surface of the leaf and petiole, but often also on the other parts of the plant, and supposed to be organs of secretion.

GLANS.—The glans is a one-celled, mostly one-seeded, and indehiscent fruit or pericarp, seated in a sort of involucre called a *cupule*. Sometimes it is single, and partially naked, as in the acorn of the oak, and sometimes it is duplicate, and completely enclosed in the *cupule*, as in beech-mast, or sweet chestnut.

GLAUCOUS.—Being of a sea-green shade in colour.

GLOBOSE.—Of a rounded or globular form.

GLUME.—Glume is the chaffy and membranaceous calyx of the grasses.

GONGYLUS.—The *Gongylus*, according to Gærtner, is a simple gem, or reproductive granule, peculiar to some tribes

of imperfect plants, and exemplified in the Fuci. It consists of a slightly indurated pulp, moulded into a globe, and invested with an epidermis. Its use seems to be superseded by that of the term spore or sporule.

HASTATE.—Half-belt-shaped. When the sides of a leaf are protruded into two lateral spreading points or lobes near the base.

HEART-WOOD.—The central and circular layers of the stem of dicotyledonous plants, equivalent in its signification to the *Duramen*.

HELMET.—When the upper lip of a labiate flower is conspicuously arched, as in *Lamium album*, it is denoted the *Helmet-galea*.

HERBS.—Annuals, and plants of a soft texture, are often denominated herbs, to distinguish them from such as are perennial and woody.

HERBACEOUS.—Stems which die annually down to the root.

HERBARIUM.—No description of a plant is capable of conveying an idea of any species so satisfactory as to leave nothing further to be desired with regard to our notion of its form. The actual inspection of a specimen is indispensable. Hence the necessity imposed upon the student of exploring such districts as are within his reach, or of having resource to the *copia plantarum* of a Botanic Garden. Nor is even this enough. The botanist must be always in the field or in the garden and yet he may want to see his plants, or some important part of it. Hence, also, the utility of dried specimens; that is, of a *Herbarium* or *Hortus Siccus*.

HERMAPHRODITES.—Flowers producing both stamens and pistils in the same individual are Hermaphrodite flowers; and plants producing such flowers are Hermaphrodite plants.

HILUM.—This term denotes the mark that is left on the surface of every seed by the natural fracture of the umbilical cord. Linnæus gave it the appellation of the hilum, which the term scar translates.

HIRSUTE.—When the surface of any part is covered with longish hairs.

HISPID.—When the hairs are short and stiff.

HOOKS.—If the hairs constituting the pubescence of any plant are bent backwards at the point, they are then called hooks.

HOODED.—Hooded, when the upper petal of the corolla covers the inferior parts, as in *Aconitum Napellus*.

HYBRIDS.—Hybrids are among plants what mules are among animals, that is, intermediate productions which have sprung from two individuals of two distinct species.

HYGROSCOPICITY.—This term denotes the property by which vegetable tissue, whether dead or alive, tends to absorb or to sip up moisture, so as to put itself in due equilibrium with the surrounding medium.

HYMENIUM.—In the gymnocarpous fungi, the hymenium is the organ that bears the seeds or sporules. In *Helvella* it occurs in the shape of an extended membrane; in the *Agarics*, in that of gills; and in *Boletus*, in that of pores.

HYPOGYNOUS.—When the stamens originate in the receptacle and do not adhere either to the ovary or to the petals, they are said to be hypogynous.

IMBRICATED.—Parts placed one over another like tiles.

INCOMPLETE FLOWERS.—When the corolla is wanting, as in *Morus Nigra*.

INCURVATED.—Signifying parts turned inwards.

INDEFINITE INFLORESCENCE.—If the principal axis of the inflorescence terminates, always, as it extends, in a leaf-bud, without passing into the condition of a flower-bud, the flower-buds being axillary—such inflorescence is said to be indefinite, because you cannot foresee where its prolongation is to stop.

INDUSIUM.—The indusium is a thin and membranaceous integument covering the groups of capsules peculiar to the *Doriferous* ferns, and originating for the most part

in the nerves or veins of the frond, but sometimes also in the margin.

INFERIOR.—Applied to the corolla, when its receptacle is below the germen; and to the germen, when it is placed beneath the calyx or corolla.

INFLORESCENCE.—The inflorescence, from *florescere*, to flourish, a term introduced by Linnæus, is the peculiar mode of aggregation in which flowers are distributed upon the plant; whence it is also called the mode of flowering.

INSOLATION.—The exposure of plants to the light of the sun, and the vivifying influence which it exerts upon them, either directly or in combination with fluids which they contain, Dutrochet designates by the term *insolation*.

INTER-CELLULAR PASSAGES.—As the great bulk of many plants is composed of a cellular system which the vascular system merely traverses in a longitudinal direction, it will follow, that between the cells, which are in their origin of a globular form, certain openings or spaces must necessarily exist. They are denominated by botanists inter-cellular passages.

INTERNODE.—The space that intervenes between knot and knot, or joint and joint, of stems that are knotted or jointed at regular intervals, is denominated the internode, as in the grasses.

INTERVENIUM.—The area of parenchyma lying between two or more veins or veinlets of a leaf, is denominated the intervenium.

INTEGUMENTS.—Every part or organ of the plant, with the exception of the spongiole and apex of the pistil, has its own peculiar integument or envelope. The stem has its bark, the leaf its epidermis; the flower its calyx or corolla or both; the calyx or corolla their own peculiar cuticle; and the seed its primine and secundine.

INTROSUSCEPTION.—This term denotes the act of taking in, whether of fluids by the root, or of gases by the leaf.

INVOLUCRUM.—The involucre or wrapper is a species of Bracte or floral leaf, or an assemblage of floral leaves, peculiar to the tribe of umbelliferous plants, situated at the base either of the general or partial umbel, or at the base of both, and regarded as being a general or partial involucre accordingly. It surrounds the stem or peduncle entirely, as in *Daucus*, or by the one half only, as in *Ethusa*. In the former case it is complete; in the latter dimidiate. If it consists of one leaf, it is monophyllous; if of two leaves, diphyllous; and if of many leaves, polyphyllous. The figure of the leaf or leaves is generally strap-shaped.

KEEL.—The lower petal of a papilionaceous flower, which is situated opposite to the standard, and hollowed out in the form of a boat, is denominated the keel.

KERNEL.—The seed contained within the shell of stone fruit is vulgarly designated by the denomination of the kernel.

KNOTS.—The stem of many plants is occasionally disfigured by accidental tumours projecting from the surface, and forming ultimately what are called knots or bunches. They are very common in the oak and elm, and are produced perhaps by means of some obstruction in the channel of the sap's motion; by which the vessels become convoluted and swell up into a lump. Among the branches, knots or bunches are sometimes formed by means of a plexus of young shoots, issuing from nearly the same point, and crossing in all directions, and finally incorporating together in a sort of natural graft, apt to be mistaken at a little distance for a wood-pigeon's nest. They occur often on the branches of the Birch-tree, rarely on the Slow-thorn, and are known among the peasantry of Scotland by the name of Witches' Knots. They are occasioned, doubtless like the bunches of the stem, by some obstruction in the channel of the juices of the plant.

LABIATE.—A term first introduced by Tournefort to designate his class of plants with lipped flowers; and adopted

by Jussieu to designate one of his orders. It seems to be equal in extent to the Verrucillatae of Linnæus—flowers in a whirl with two gaping lips.

LACINEATE.—When cut into numerous irregular divisions, which are termed segments.

LANATE.—When a part is covered with soft hairs, and has a woolly aspect.

LANCEOLATE.—Lance-shaped.—Of a narrow oblong form, tapering towards the end.

LATEX.—The latex, according to M. Schultz, to whom we are indebted for the introduction of the term, is the proper juice or vital fluid of the plant, secreted from the crude sap in the inter-cellular passages, and is thus, in its formation, analogous to the formation of blood in animals. It is contained in delicate transparent membranous tubes, inter-communicating by lateral branches, and occurring both in the woody fibre and bark, which they ascend till they reach the leaves, whence they again descend till they reach the extremities of the root. The contained fluid is said to exhibit evidence of its being in motion, in distinct, but partial and irregular currents, some up, some down, some to the right, and some to the left, suddenly stopping, and then suddenly re-commencing, but not exhibiting any very close analogy to the circulation of the blood of animals. *Lardner's Cab. Cyclop.* Vol. XXV. After all, the *Latex* of Schultz seems to us to be nothing more than the *Cambium* of Duhamel, under a new name, and it is well known that the anastomosing of vessels conducting fluids is not a new doctrine.—Look at them in the leaf.

LEAF.—The leaf, which belongs to the division of the temporary parts of the plants, is a thin and flat substance, of a green colour, issuing generally from the extremity of the branches, but sometimes also immediately from the stem or root, and distinguishable by the sight or touch into an upper and under surface, a base and an apex, with a mid-rib and lateral nerves. Yet leaves are not always thin and flat, nor are they always green. The leaves of the *Aloe* are thick and fleshy; and the leaves of the several species of *Beetroot* are of a deep and dull purple. Neither are they always furnished with transverse or lateral nerves. Such are proper to dicotyledonous plants only, for in monocotyledonous plants, the nerves are all parallel. The point by which the leaf is attached to the plant is the base; the opposite and terminating point is the apex; the intermediate body of the leaf is the expansion; and the boundary of the leaf is the margin.

LIGNIN.—If a piece of the stem of a herb, shrub, or tree, is taken and well dried and afterwards digested, first in water, and then in alcohol, or such other solvents as shall produce no violent effect upon the solid parts, and if the digestion is continued till the liquid is no longer coloured, and dissolves no more of the substance of the plant, there will remain behind a sort of skeleton which constitutes the basis of the vegetable structure, and amounts to about 96 or 98 per cent., of the weight of the different kinds of wood. It has been by some chemists denominated *Woody Fibre* [*Thomson*], and by others *Ligneux* [*Raspail*]. We believe there is now a leaning towards the use of the term *Lignin*, which we consequently adopt, though it is plain that it differs from wood or herb only in the want of such ingredients as have been abstracted by digestion. According to Raspail it is composed of cells, tubes, and spirals yet visible. The cells, which have been organs of elaboration, abound in the younger parts and in the pith. In the epidermis they are much flattened, in the pubescence they are much elongated. The tubes, which have been organs conducting the sap or juices, abound in the woody parts, forming layers of a sort of network, or insulated bundles. The spirals, whose office has

been that of conducting air, abound in all phænogamous plants, but especially in the leaves. [*Nouv. Syst. de Chim.* 79.] When Lignin is distilled in a retort, it yields an empyreumatic oil, carburetted hydrogen gas, carbonic acid gas, and, according to Fourcroy, a portion of ammonia, indicating the presence of azote, as constituting one of its elements. [*Thomson's Chem.*] By the analysis of Gay Lussac and Thenard, 100 parts of Lignin contain of carbon 52, and of oxygen and hydrogen, in the ratio which forms water, 48. Thus it is redneible to precisely the same elements as wood.

LINEAR.—Of equal breadth, from the base of the apex.

LINGULATE.—Tongue-shaped. Of a thick oblong blunt figure, in the shape of a tongue.

LEGUME.—The legume is a dry, and elongated pericarp or fruit, consisting of two valves with two opposite seams, to the one of which the seeds are attached, as in the pea or bean. It consists for the most part of one cell only; sometimes of two, as in *Astragalus*; and sometimes of many, as in *Lotus*. It is one-seeded, or two-seeded, or many-seeded, as in *Pisum*. Its figure is oblong, as in *Ulex*; or cylindrical, as in *Orobus*; or rhomboidal, as in *Ovum*. Its substance is membranaceous, as in *Medicago*; or leathery, as in *Vicia*; and the surface smooth, as in *Lathyrus Nesselia*; or rough, as in *Lathyrus hirsutus*.

LEPALS.—The sterile stamens which occur in many flowers, originating in the same whirl, or between the true stamens and pistil, assuming the form of glands, or of petaloid scales, botanists designate by the term *lepal*.

LIBER.—The innermost layer of the bark is denominated the liber, the Latin name for a book, from the circumstance of its having been sometimes used by the ancients to write on, before the invention of paper. It is the finest and most delicate of all the layers of bark, and is often most beautifully reticulated.

LID.—When the calyptra of the mosses has fallen, the mouth of the capsule is still found to be covered with a lid, terminating in a beak or rostrum, usually called the operculum.

LIGNEOUS LAYERS.—The ligneous layers are the concentric and annual layers, of which the woody parts of exogenous plants are composed; soft at the circumference of the stem, but more solid at the centre.

LIMB.—The expanded border of a monopetalous corolla, or the upper and dilated part of an individual petal of a polypetalous corolla is usually designated by the appellation of the limb—*limbus*, *lamina*.

LOBE.—The larger portions into which some simple leaves are naturally divided are called lobes, and so also are the cotyledons of the seed. If the plant is monocotyledonous, the lobe is single; if the plant is dicotyledonous, the lobes are in pairs.

LOCULI.—The little cells of the anthers which contain the pollen are, in the language of botany, called Loculi.

LOCULICIDAL.—A mode of the dehiscent of fruits.

LOCUSTA.—The individual spikelet that makes part of the general spike of many of the grasses, as in *Bromus*, furnished at the base with a perianthium consisting of two opposite glumes, is by modern botanists denominated a *Locusta*.

LOMENTUM.—Besides the varieties of legume which we have already pointed out, there is a peculiar variety of it, which, though externally forming longitudinal sutures, to one of which only the seeds are attached, does not yet open longitudinally by means of two general valves; but transversely, by means of joints, each joint forming a cell that contains one seed, which is finally extricated by the opening of the individual joint. This variety of legume was regarded by Willdenow as containing a distinct species of pericarp, and designated by the name of the *Lomentum*; but is a distinction to which it seems scarcely entitled.

LUXURIANT FLOWERS.—If the usual number, whether of the petals, stamens, or pistils, proper to any flower, is unduly augmented, to the exclusion or diminution of either of the other parts, the flower is then said to be luxuriant; in which case there are three principal varieties, the multiplicate-flower, the full-flower, and the proliferous-flower.

LYMPHATICS.—The vessels by which the sap or lymph is conveyed from the extremity of the root to the extremity of the stem or branch, are often designated by the appellation of Lymphatics.

LYRATE.—Lyre-shaped. Divided transversely into several segments, which increase towards the extremity.

MACULÆ INDICANTES.—The coloured spots with which many flowers secreting a honied fluid are marked, Springle designated by the name of *Maculæ indicantes*, as indicating the treasure that is contained in the flower, and thus attracting the notice of insects.

MARGIN.—The outline that bounds the expansion of the leaf or the petal is the margin.

MEDULLARY RAYS.—If a horizontal section of the stem of the oak or elm is taken, and inspected even with the naked eye, it will be seen to be composed of two sets of layers crossing one another, the one circular and concentric, the other divergent from the centre. To this last set the appellation of medullary rays has been applied by some phytologists, upon the presumption that they proceed from the pith, though it is but a few of them that can be fairly traced to it.

MEDULLARY SHEATH.—The first layer of longitudinal fibres surrounding the pith, is called the Medullary Sheath.

MEDULLINE.—The cellular tissue of the pith of dicotyledonous plants, deprived of all its juices, and no longer discharging any living function, has been regarded by M. Chevreul, as constituting a peculiar substance, to which he gives the name of *medulline*. But M. Raspail regards it as being merely lignin, reduced to its simplest form, and state of greatest purity; so that we may fairly say of it, *sub judice lis est*.

MEMBRANE.—Membrane is that thin and filmy substance, of which the cellular tissue whether of vegetables or of animals is composed, being the first visible result of the transformation of gases, or of liquids into a solid and concrete form: and the primary and fundamental basis of all organic fabrics: unless we say that the film is itself composed of the finest molecules imaginable, laid closely side by side.

MICROPYLE.—The term micropyle, lately introduced by Mirbel, is equivalent to the term Foramen, formerly introduced by Grev. It is a perforation generally visible on the exterior of the testa, and always found facing the radicle of the embryo.

MONOPHYLLOUS.—When a calyx consists of only one leaf.

MID-RIB.—The main prolongation of the foot-stalk, which extends from the base to the apex of the leaf, is the mid-rib.

MIGRATORY ROOT.—In the annual stems, which are partially procumbent, it often happens, that new radicles are protruded from the lower surface of the procumbent portion, and part of the stem drawn down and converted into a root every year. The new shoot issues from the apex, and progresses in the same manner, so that in the course of a few years, the plant has actually changed its place, by so much as the stem has been converted into a root. Such roots are said to be migratory, and are exemplified in the genus *Iris*.

MILDEW.—Mildew is a thin and whitish coating, with which the leaves of vegetables are sometimes covered, occasioning their decay and death, or injuring the health of the plants. It is frequently found on the leaves of *Tussilago Farfara*, *Hemulus Lupulus*, *Corylus Avellana*, and white and yellow Dead-nettle. It is found also on the leaves of wheat, in the shape of a glutinous

exudation, particularly when the days are hot, and the nights without dew. Willdenow, says, it is occasioned by the growth of a fungus, of great minuteness—the *Mucor Erysiphe* of Linnaeus, or by a sort of whitish slime, which some species of aphides deposit on the leaves. In cultivated crops it is said to be prevented by manuring with soot.

MONADELPHIA.—This term gives name to the sixteenth class of the artificial system of Linnaeus. It implies that the filaments are all united at the bottom, but separate at the top.

MONŒCIUS.—Plants bearing both male and female flowers on the same individual, are said to be monœcious, the flowers being regarded as members of a family living in one house, as in the case of the oak and hazel.

MONANDRIA.—This term gives name to the first class of the Linnæan system, and implies that the flowers of plants belonging to it, have but one stamen.

MONANDROUS.—Flowers having but a single stamen are said to be monandrous, as in *Chara*; if they have two stamens, as in *Veronica*, they are said to be diandrous, and so on according to the number of stamens.

MONOCOTYLEDONOUS.—Plants whose seed have only one lobe or cotyledon.

MONOGYNOUS.—Flowers having but a single style are said to be monogynous, as in *Primula*.

MONOPETALOUS.—Flowers consisting of a single petal, or of several petals united, are said to be monopetalous, as in *Campanula*. When they have any other number of petals, they are designated according to that number.

MONOSEPALOUS.—If the calyx of any flower consists merely of a single piece, or sepal, or of several sepals united, it is said to be monosepalous, as in *Primula*. If it consist of other numbers of sepals it is designated according to that number.

MURICATED.—Covered with sharp points.

MULTIFID.—The margin of round leaves, cut from the apex almost to the base, without having any great intermediate sinuses.

NAKED FRUIT.—If the fruit when it fall from the herb or tree is left without any extraneous or supernumerary appendage, as in the cherry, apricot and currant, it is said to be naked. But if it is invested by the calyx, as in holly-hock, or by the corolline valves, as in the grape, or by the receptacle, as in the fig, it is then said to be coated; and if it is invested but partially, it is then said to be veiled, as in the case of the hazel-nut, which is veiled by the calyx.

NAKED FLOWER.—When the corolla is present without the calyx, it is denominated a naked flower, as *Helleborus Niger*.

NAKED SEEDS.—Seeds destitute of a conspicuous pericarp, are said to be naked, or have hitherto been said to be so, as in the case of the Labiate, which still show traces of a pericarp. But seeds that are truly naked, show no traces of a pericarp at all, the very ovula being naked, as in the *Conifera* and *Cycadeæ*.

NECTARY.—With some flowers, there is a nectary or peculiar appendage, attached for the most part to the corolla, secreting or containing a honied juice, though it is not necessary to a nectary, that honey should be present. The horn-like process issuing from the base of the corolla of the *Viola odorata*, is a nectary. It assumes however, a great variety of shapes and situations in different genera of plants. In the *Aconitum Napellus* it is hooded, in the *Helleborus Niger*, tubular, and in the *Sinapis Alba*, a gland.

NERVES.—The ramifications of the fibres of the petiole, as prolonged throughout the expansion of the leaf, are very often spoken of, as being the nerves of the leaf, though it cannot be said that they are at all analogous, in their functions, to the nerves of animals.

NUCLEUS OF THE SEED.—The nucleus is that part of ripened

seed, which is contained within the proper integuments, consisting of albumen, with the vitellus, when present, and embryo.

NUTS.—Individual seeds contained in a bony pericarp, of a hard and bony, though sometimes of a leathery texture, not opening spontaneously, or if opening, not into more than two valves. It is exemplified in the Filbert and Chestnut.

OBCORDATE.—Heart-shaped leaves, when rounded at the apex.

OBLIQUE.—When one part of the leaf is vertical, the other horizontal.

OBOVATE.—Egg-shape, with the broad end uppermost.

OBTUSE.—When any part forms the segment of a circle, and is rounded.

OCHREA.—The ochrea is a membranous sheath, being apparently, a modification of the bracte, situated at the base of the petiole, and at the same time, surrounding the stem, as in Polygonum.

OFFSET.—The offset is a short lateral branch, in some herbaceous plants, terminated by a cluster of leaves, and capable of taking root, when separated from the parent plant, as in Sempervivum. It differs but little from the runner.

OMPHALODIUM.—The central point of the hilum, where the nourishing vessels enter the seed, is by Turpin, called the Omphalodium.

OPERCULUM.—The lid which covers the orifice of the urn of the mosses, is the operculum.

OVARY.—The ovary is the lower extremity of the pistil, enclosing the ovula in its cavity or cavities, and supporting the style and stigma. In its attachment it is sessile, as in Arbutus, or stipitate, as in the Poppy. If it originates below the calyx, it is said to be inferior, as in the apple; if above, or rather within the calyx, it is said to be superior, as in Primula. Yet some botanists contend that it is always superior; and when it secus otherwise, it is only because the lower portion of the calyx, is so intimately incorporated with the ovary as to seem to be part of it, (*Ventenat*), as in the case of the apple and pear. Its figure is globular or egg-shaped, or oblong, or compressed, as in the Vetch. In its structure it is simple, that is, containing only a single cell, as in the pea and bean; or compound, that is, containing two or more cells, as in Euphorbia. That portion of the ovarium in which the ovula originate is called the placenta. It is either a part or the whole of one angle, of each cell, to which the ovula are attached, either immediately, or through the intervention of a small cord, called the umbilical cord.

OVATE.—When the length of a leaf is greater than the breadth, with both extremities rounded; but the base much broader than the apex.

OVATE-LANCEOLATE.—Partaking of the ovate and lanceolate figure.

OVULA.—The ovula are small, semi-pellucid, and pulpy bodies, issuing from the placenta, and changing gradually into seed.

PALMATED.—When a leaf is divided nearly down to the middle into several segments.

PANICLE.—The panicle is an assemblage of flowers, supported upon a primary and terminal peduncle or axis, that is irregularly divided into secondary peduncles, which are sometimes again subdivided into tertiary peduncles or pedicles. It is exemplified in *Bromus arvensis* and *Avena flavescens*, and may be regarded as resembling a sort of loose spike.

PANDURIFORM.—Fiddle-shaped. Oblong, broad at two extremities, and contracted in the middle.

PAPILIONACEOUS FLOWER.—Sometimes the petals of a tetrapetalous corolla are irregular, and disposed so as to exhibit a slight resemblance to a butterfly, in which case the flower is said to be papilionaceous, and is exemplified in that of the pea and bean, the petals of

which, and of all similar flowers, are so peculiar in their form or position as to have received distinct appellations. The upper petal, which is generally large, and furnished with an erect border, is denominated the standard. The lower petals which is situated opposite to the standard, and hollowed out in the form of a boat, is denominated the keel; and the two remaining petals, which are situated in an opposite position, one on each side of the keel, are denominated wings. If the keel or boat is composed of two distinct pieces, as is sometimes the case, then the papilionaceous flower is quinquepetalous.

PAPILLÆ.—The Papillæ are minute, transparent, and elevated points, emerging from the cuticle of the leaf or flower, and filled with a peculiar fluid. They are the utricular glands of Guettard, and are well exemplified as they occur on the leaves of the Ice Plant.

PAPPUS.—This term is sometimes employed to denote the down which many botanists regard as the proper calyx of compound flowers.

PARASITES.—There are certain plants, many of them Phænogamous, but more, perhaps, Cryptogamous, that will vegetate neither in the earth nor water, but on certain other plants, to which they attach themselves by means of roots that penetrate the bark; or into the interior of which they insinuate themselves in a more mysterious way, and from the juices of which they do often, but not always, derive support.

PARENCHYMA.—The Parenchyma of some writers seems to imply merely what is otherwise denominated cellular tissue. We prefer that acceptation of it by which it is made to be equivalent to the term pulp, that is, a cellular tissue, whose cells are filled with a *chromula*, whether green, as in the interior of the leaf, or colourless, as in the interior of a ripe apple.

PARIES.—The wall, or external boundary of any containing organ, is its paries; as the wall or paries of the ovary containing the incipient ovula or ripened seeds.

PARTITIONS.—Partitions are the Septa or dissepiments by which an ovary is often divided into several cells bearing placenta, as in the genus *Iris*. All dissepiments are vertical. They cannot be horizontal, because they cannot have a direction different from that of the carpella. They are equal in number to the carpella out of which the pistil is formed. A single carpellum can have no dissepiment.

PECTINATE.—When the segments of a leaf are very narrow, linear and parallel like the tooth of a comb, they are called *pectinate*.

PEDICLES.—The ramifications of the main peduncle, when it has any, take the name of Pedicles.

PEDUNCLE.—The Peduncle is a flower stalk issuing from the stem or branch, and supporting a flower or flowers, but not leaves.

PELLICLE.—Any thin filmy membrane is a Pellicle; but Gartner applied the term to the fine epidermis that covers the surface of some seeds, as those of *Salvia verbenaca*.

PELTATE.—When the petiole is inserted into the disk of a leaf.

PENDANT.—When the whole leaf droops.

PERENNIALS.—When they last for more than two years.

PERFECT FLOWERS.—When stamens and pistils, are both, as usual, in one flower, it is called perfect, united or hermaphrodite, as in *Rosa canina*, *Papaver somniferum*, and most plants.

PERFECT PLANTS.—Plants furnished with the full complement of parts and organs common to vegetables in general, are said to be perfect. They are said also to be phænogamous, as being furnished with conspicuous flowers; because conspicuous flowers are the glory of the plant, and in many plants they are wanting. Hence, if any plant is deficient in one or more of the parts or organs common to vegetables in general, such plant is said to be imperfect.

PERFOLIATE.—When the stem runs through the leaf.

PERIANTH.—The term Perianth was originally employed to designate the outer envelope or calyx of any flower, particularly if it was so formed as to resemble a cup. But it seems now to be confined in its application to the case of flowers having but a single envelope, of which it would be difficult to say, whether it is calyx or corolla.

PERICARP.—The Pericarp is the exterior portion of the ripened ovary, of which the interior portion is the seed. It is regarded as consisting of three distinct parts, epicarp, or external integument of the fruit; the endocarp, or putamen immediately investing the seed; and the sarcocarp, or fleshy pulp that lies between both. You have them well exemplified in the peach, in which the outer skin is the epicarp, the fleshy pulp the sarcocarp, and the stone or putamen the endocarp. The base of the pericarp is the point where it unites with the peduncle; the apex, the point where the style was. When the fruit has arrived at maturity, some pericarps open of their own accord, and discharge the seeds: such are said to be dehiscent. The pieces into which they separate, are called valves; and the axis from which they separate, where a distinct axis exists, is called the *columnella*. The dehiscence is septicidal,—that is, through the dissepiments, as in *Rhododendron*; Loculicidal,—that is, through the valves, as in *Lilac*; or sutural,—that is, along the inner edge of a single fruit or carpellum as in the pea; septifragal,—that is, by a separation of the dissepiments from the valves, as in *Convolvulus*; or lastly, it is transverse to the suture of the valves, as in *Anagallis*. Some fruits, though ripe, remain perfectly closed, and do not open but on decay, or germination, such are said to be indehiscent. Botanists enumerate a great variety of modifications in the form or fabric of pericarps; but they are apt to institute distinctions without a warrantable difference, and thus they introduce a chaos rather than a regular super-structure. The following species of pericarp are the most common: the Capsule, the Pomeum, the Berry, the Nut-shell, the Drupe, the Silique, the Legume, the Cone.

PERICHAETUM.—The Perichaetium is the fence or calyx of the mosses, being an assemblage of loosely imbricated scales, surrounding the fertile flowers, and terminating in a fine hair or bristle, as in *Hypnum*.

PERIGYNOUS INSERTION.—Though it seems to be admitted that the stamens do always originate in the base of the ovarium, yet botanists are in the habit of saying that they are inserted into the calyx or corolla, because it often happens that they adhere to these organs up to a certain point, as in *Primula* and in *Rosa*, and hence such insertion is said to be Perigynous.

PERIPHERICAL.—The embryo is said to be Peripheral when it is accumbent on the external integuments, as in the grasses.

PERISPERM.—The testa of Gartner is by some botanists denominated the Perisperm. But it does not seem to be a term that is at all wanted.

PERISTOMIUM.—The fringe that surrounds the mouth of the capsule of the mosses is the Peristomium. It consists of a circular and double row of fine and tooth-shaped substances, sometimes united into one set, and sometimes divided into several sets.

PERMANENT.—Applied to the calyx and corolla when they continue until the fruit is ripe.

PETALS.—The divisions of the corolla or inner envelope of the flower are denominated petals. They always alternate with the sepals or divisions of the calyx, like which they are either distinct or united together by their margins; only they are not green, or but very rarely so, though they are of colours that are much more gaudy,—white, blue, red, or yellow.

PETIOLE.—The foot-stalk that supports a leaf is very generally called its Petiole.

PINNATE.—When several leaves proceed laterally from one foot-stalk.

PINNATIFID.—Applied to parts cut transversely into deep oblong parallel segments,

PHYTOGRAPHY.—This term is made use of by some writers to denote that department of botany which describes the entire plant.

PHYSIOLOGY.—If we regard the term physiology as denoting that branch of science which treats of, and accounts for the phenomena of life, then it will be evident that it divides itself naturally into two grand departments; namely Zoology, involving the phenomena of animal life; and Phytology, involving the phenomena of vegetable life.

PISTIL.—The Pistil is a small and column-shaped, but often pestle-shaped organ, occupying almost invariably the centre of the flower, and encompassed immediately by the stamens, that is, when the plant is hermaphrodite. In monoecious and dioecious plants this arrangement cannot take place. The pistil is simple, as in the Cherry, or compound, as in the Pear; and it is divisible at least into two, but very often into three distinct parts, namely, the ovary, the style, and the stigma. The ovary is the lower extremity of the pistil, supporting the style and stigma, and containing the rudiments of the future seed or seeds. [See *Ovary*.] The style, or middle portion of the pistil, is a prolongation of the substance of the ovary, issuing generally from its upper extremity, and supporting the stigma. It is deciduous, and falls when the ovary is ripe; or persistent, and adheres to the fruit. The stigma is a small and glandular-looking substance, crowning the style, and hence also denominated the summit, yet it is sometimes, though rarely, lateral, as in *Scheuchzeria*. Its figure is globular, or hemispherical, or conical, or petaloid. It is destitute of an epidermis, and in its duration it is, like the style, sometimes deciduous and sometimes persistent.

PITH.—The Pith is a soft and spongy, but often succulent substance, occupying the centre of the root, stem, and branches of dicotyledonous plants, and extending in the direction of the longitudinal axis, in which it is enclosed as in a tube. In most plants it is close and compact, without any apparent solution of continuity, as in the Willow and Poplar; but in others it is loose and interrupted, as in the Thistle and Walnut. In the Fig and Elder its diameter is large in proportion to that of the stem or branch; while in the Oak or Elm it is but very small.

PLACENTA.—That portion of the ovarium in which the ovula originate is called the Placenta. It generally occupies the whole or a portion of one angle of each cell, being formed by the union of the folded-in margins of the carpellary leaf.

PLAITED.—Lying in folds like a fan.

PLANT.—A plant or vegetable is a living and organized body, insentient, and incapable of locomotion; but originating in a seed which springs up into a plant, again producing seed.

PLANTLET.—The Plantlet is that portion of the embryo which is invested, or partially invested, by the cotyledons; being the future plant in miniature.

PLUMOUS.—Having a feathery appearance.

POLLEN.—The pollen is the fine powder that is contained in the anthers or summit of the stamens.

POLLEN TUBES.—The Pollen tubes, which are equivalent to the *boydæus* of M. Ad. Brongniart, are tubes of an extreme tenuity, which issue from the innermost of the two membranes that invest the globe of pollen.

POLYGAMOUS PLANTS.—Plants producing male, female, and hermaphrodite flowers, indifferently, are said to be polygamous.

POLYPETALOUS.—Having many petals.

POMUM.—The Pomum is a fleshy or pulpy pericarp or fruit, without valves, but enclosing a capsule, which is a thin and membranaceous substance, consisting for the most part of five distinct cells. It is exemplified in the familiar case of the apple, from the Latin appellation for which it has taken its name.

PORES.—Pores are openings or presumed openings in the membrane composing the cellular or vascular tissue of the interior of the plant. Mirbel advocates the doctrine of their existence, and Dutrochet denies it.

PRICKLES.—Prickles are stiff and sharp-pointed processes issuing from the stem or branch, and originating in the bark, with which they may be entirely stripped off. In this respect they differ from thorns, which have their origin in the wood. They are well exemplified in the Rose or Bramble.

PRIMINE.—The outermost of the coats that envelopes the ovulum in its early state has been by Mirbel denominated the *Primine*; and botanists seem to have adopted the term.

PROPAGO.—According to Gærtner, the Propago is a simple gem reproductive of certain genera of Cryptogamous plants, particularly the Lichens. It is a small and pulpy granule of no regular shape, naked, or covered with an envelope, and equivalent to the spores of modern botanists.

PROLIFEROUS FLOWER.—If a flower protrudes other flowers from within in its own disk, it is said to be prolific, as in Chliding Daisy.

PUBESCENCE.—Pubescence is a general term including all sorts of cuticular processes or prolongations with which the surface of the plant may be covered, finer or less formidable than the armature, such as hairs, hooks, scales, down.

PULP.—The Pulp is a term that may be regarded as synonymous with that of the Cellular Tissue.

PULVINUS.—M. Link has given the name of *Pulvinus* to the small protuberance that is found on the stem or branch, immediately under the cicatrice which the leaf leaves behind by its fall.

PUTAMEN.—The Putamen of Gærtner, which is equivalent to the endocarpium of Richard, is the shell of the nut, or the stone of the Drupe, as exemplified in the Filbert and Peach. It does not open spontaneously.

PYRENA.—If a Putamen is composed of several cells, each cell takes the name of pyrena, as in *cornus*.

PYXIDIUM.—The Pyxidium is a one-celled capsule, which has become so by the obliteration of the dissepiments of several carpella: and in which the suture of dehiscence is transverse to that of the valves, as in *Anagallis arvensis*.

QUARTINE.—If the chorion or nucleus of the ovulum develops a secondary integument, it is, according to Mirbel, to be called the quartine.

RADICLE.—The Radicle is that portion of the embryo which in germination, descends into the soil, and becomes the root, or caudex descendens, of Linnæus.

RACEME.—The Raceme is merely a different term for that mode of inflorescence which is called the cluster.

RACHIS.—The flexuose axis of the inflorescence of the grasses is denominated the Rachis, and the term is also applied to denote the midrib of the Frond of Ferns.

RAMENTA.—The small and scattered scales that are frequently found on the stems of vegetables originating in the bark, and giving it a rough or chopped appearance, were by Linnæus denominated Ramenta. They are peculiarly conspicuous on the stem or branches of *Tamarix gallica*.

RAMOSE.—The Ramose or branched root, is a very common species, being that of most trees and shrubs.

RAPHÉ.—The Raphé is the internal umbilical cord, which passes from the hilum or base of the seed to the chalaza.

RAPHIDES.—The raphides are small and needle-shaped substances, interspersed throughout the cellular tissue, or proper juices of many plants. They are said to be crystals of oxalate of lime. [*Raspail*.]

RAYS.—The divergent layers seen on the transverse section of the stem of woody plants are often designated by the appellation of the medullary rays. The outer petals of a compound radiate flower are also designated by this name.

RECEPTACLE.—With botanists, the receptacle is the base on which the several parts of the fructification rests; that is, the extremity of the peduncle, which undergoes many modifications in accommodating itself to the form of the flowers and fruits of the different families of plants.

REGMA.—If a pericarp consist of three or more cells which burst from the axis with elasticity into two valves, it is called a regma, and the several cells are called *cocci*. It is exemplified in *Euphorbia*. [*Lindley*.]

RENIFORM.—Kidney-shaped. When the apex of a leaf is broad and rounded, and the base deeply hollowed out in the shape of a kidney.

REPLUM.—When the two sutures of a silique separate from the valves, they form a kind of frame called replum, as in *Cheiranthus*.

RESUPINATE.—When the surface of a leaf which is commonly undermost, is found uppermost.

RETUSE.—When the apex is obtuse, with a broad shallow notch in the middle.

RINGENT.—Gaping.

RINGENT COROLLA.—When two lips of a labiate flower are separated from each other by a wide and regular orifice, the corolla is said to be ringent.

ROOT.—The root is that part of the plant by which it attaches itself to the soil in which it grows, or to the substance on which it feeds, and is the principal organ of nutrition.

ROOTSTOCK.—The rootstock, *rhizoma*, is a prostrate thickened rooting stem, which yearly produces young branches or plants. It is chiefly found in the *Frideæ* and epiphytous *Orchideæ* [*Lindley*.] and in some Ferns.

ROOTLETS.or fibres are the essential organs by which absorption of nutriment is effected.

RUGOSE.—Applied to leaves with inequalities rising above the veins.

RUNCINATE.—When the expansion of a leaf is deeply cut into many transverse acute-angled segments, the points of which tend towards the base of the leaf.

RUNNERS.—Runners are young shoots, issuing from the collar, or summit of the root, and creeping along the surface of the soil, but producing a new root at the extremity, and forming a new individual, by the decay of the connecting link. This takes place in a great variety of herbs, but particularly in the Strawberry, which is a good example.

SACCULUS COLIQUAMENTI.—By this appellation, Malpighi designated the fine, thin, and pellucid membrane, with which the annios is found to be sometimes invested.

SAMARA.—This term was employed by Gærtner to denote a species of capsule, which is described as being indehiscent, winged, one or two celled, but without valves, as in the ash, elm, and maple.

SAP.—If a branch of the vine, *Vitis vinifera*, is cut asunder early in the spring, before the leaves have begun to expand, a clear and colourless fluid will issue from the wound, and will continue to flow copiously for a considerable length of time. It is merely however, the ascending sap, and may be procured from almost any other plant by the same or similar means, and at the same season, but particularly from the maple, birch, and walnut-tree, by means of boring a hole in the trunk. It issues chiefly from the tubes of the albumen, though in some plants, it does not flow freely till the bore is carried to the centre. A small branch of a vine has been

- known to yield from twelve to sixteen ounces in the space of twenty-four hours. A maple tree of moderate size, yields about two hundred pints in a season, and a birch tree has been known to yield in the course of the bleeding season, a quantity equal to its own weight.
- SARCOCARP.**—The Sarcocarp is the fleshy pulp that lies between the external cuticle, and the putamen, or shell of stone fruit. See Pericarp.
- SCALES.**—The term scales or squama is usually applied to designate the bractæ of amentaceous flowers; or indeed the bractæ of any flower, if they have a scaly appearance.
- SCAPE.**—The Scape is a flower-stalk issuing immediately from the root, and forming the only trunk of the plant. It is well exemplified in the case of the several species of Primula. It is naked, as in the Hyacinth; or scaly, as in Tussilago Farfara; or leafy, as in Sweet-Flag.
- SCUTELLA.**—The little shields or caps found on the *thalli* of the Lichens, are by botanists designated scutellæ.
- SEED.**—The seed, which is the last and most noble part of the fruit, is the interior portion of the ripened ovary, contained within the pericarp, and containing the rudiments of a new plant similar to that from which it sprang.
- SEGMENTS.**—The divisions of leaves, corollas and calyces.
- SEPAL.**—The several divisions of the calyx which had not till lately a proper name, are now called Sepals.
- SEPTICIDAL.**—A mode of the dehiscence of fruit. [See PERICARP.]
- SERRATED.**—Sawed. When the margin of a leaf has teeth like a saw.
- SERRULATED.**—When the margin is minutely serrated.
- SESSILE.**—When a flower is attached close to the branch or stem, it is said to be sessile.
- SHEATH.**—This term is applied to designate a sort of sack-like envelope, that invests the base of the fructification of the mosses, as also a circle of fibres that invests the pith longitudinally, and is usually designated by the name of medullary sheath.
- SHRUB.**—If the branches of a perennial proceed immediately from the *caudex descendens*, without any intervening trunk, the plant is called a shrub, as in Privet.
- SILICULA.**—If the tranverse and longitudinal diameters of a silique or silique are equal, or nearly so, it then takes the name of a *silicula*, as in Thlaspi.
- SIMPLE FLOWERS.** differ from aggregate flowers in not having any parts of the fructification common to many florets, but consisting of a single blossom.
- SILIQUA.**—The silique is a dry and elongated pericarp or fruit, consisting of two valves, with two opposite seams, to which the seeds are alternately attached, as in Cheiranthus. When the valves open they separate from the seams, and form a replum, with a dissepiment, which is sometimes fenestrate.
- SINUATED.**—When the margin of a leaf is cut, as it were, into roundish scollops.
- SOLITARY.**—Parts which stand singly or alone.
- SOREDIA.**—Soredia are heaps of powdery bodies that lie scattered upon the surface of the *thalli* of the Lichens.
- SORI.**—The clusters of spores or granules that are found on the fronds of Dorsiferous ferns, are denominated Sori.
- SPADIX.**—The Spadix is a species of inflorescence in which the flowers are closely arranged around a fleshy axis, which is enclosed in a spathe. It is peculiar to the Palms and Aroidæ.
- SPATHE.**—The term spathe, is by some botanists restricted to the floral leaf that invests the spadix of the Palms and Aroidæ; by others it is extended to the sheath that invests the unexpanded flowers of Narcissus, and similar liliaceous plants.
- SPATULATE.**—When a leaf is round at the apex, and gradually tapers towards the base.
- SPECIES.**—A species is a group of individuals connected together, by certain obvious and unequivocal resemblances, in the form and structure of their several parts or organs, but differing by some striking and peculiar trait, from all the other groups of allied individuals, that may happen to belong to the same, or to any other genus.
- SPIKE.**—The spike is a species of inflorescence consisting of an assemblage of flowers arranged in close succession upon a common and longitudinal axis, which is generally a prolongation of the stem, as in Wheat and Barley.
- SPINDLE-SHAPED ROOT.**—If a root tapers gradually from the base to the apex, and descends to a considerable depth in the soil, it is said to be spindle-shaped, as that of the Carrot or Parsnip.
- SPINES.**—The leaves or their segments, as well as the division of the calyx, are in many plants found to terminate in sharp indurated points, which may be called spines, as in the Thistles, particularly in that species which the Scotch have adopted as emblematic of their nation. Hence the origin of the motto, *Nemo me impune lacessit*.
- SPIRAL VESSELS.**—The spiral vessels are fine, filmy, and transparent tubes, interspersed occasionally with the other tubes of the plants, but readily distinguished from them by their being twisted in the form of a corkscrew, from right to left, as in the stem of spearmint, or from left to right, as in the stem of Fuller's Teasel, and terminating in a cone, as it is said. Grew and Malpighi, who first discovered and described them, represented them as resembling in their appearance the *tracheæ* of insects, and designated them by that name, an appellation by which they are still very generally known.
- SPONGIOLE.**—The pulpy and bilobous extremities of the fine fibres of the root are called Spongiolæ, from their absorbing, like little sponges, the moisture of the soil. They are composed of one or more central ducts or vessels, enveloped by a cellular tissue, but they are destitute of an epidermis.
- SPORES.**—The small germs or granules by which plants of the class Cryptogamia are propagated, and which are lodged in the Soredia or Sporida, botanists designate by name of spores or sporules.
- SPORIDIA.**—The fine and filmy envelopes that enclose the Spores of the Fungi, and denominated Sporida.
- SPUR.**—The Spur is a horn-like process issuing immediately from the corolla, as in Orchis. Linnæus regarded it as a nectary, but it does not always contain a nectiferous gland.
- STALKS.**—The stems of herbaceous plants are called stalks. They are rarely woody, and live but for one or two years in the natural state.
- STAMENS.**—The Stamens, an appellation borrowed from the Latin term *stamen*, a thread: "*et gracili geminus intendunt staminetelas*."—Ovid. Met. vi.—are substances of a very slender fabric, and of a thread-shaped figure, consisting of two parts, namely, a filament and anther, that is, a small bag, or viscus, which the filament supports. They are situated immediately within the corolla, to which they are sometimes attached, and may be seen very conspicuously by opening up the blossom of a Tulip or a Lily. They are apparently of no importance in the eye of the vulgar spectator, but are essential to the botanical notion of a flower, because indispensable to the formation of perfect fruit. The calyx is sometimes wanting, and the corolla is sometimes wanting; or the calyx and corolla both, as in Euphorbia; but the stamens are never wanting, except through adventitious or accidental causes united. Linnæus suggested a rule for distinguishing the calyx

from the corolla, founded upon the position of the stamens. The stamens alternate with the segments of the corolla, but face the segments of the calyx. This rule holds good in many cases, but is not universal. They face the corolla in the Lily, unless with Jussieu, we call the single envelope a calyx. Sometimes the stamens cohere by the filaments; if in one set, they are monadelphous; if in two sets, they are diadelphous; if in more than two sets, they are polyadelphous. Sometimes they cohere by the anthers, as in the nineteenth class of Linnæus, and then they are said to be syngenesious.

STIGMA.—The stigma is the upper extremity or summit of the style, or pistil, or metamorphosed leaf, out of which the pistil or carpellum is formed. It is without a cuticle, and is hence either humid or papillose.

STINGS.—Stings are awl-shaped processes, originating in the cuticle of the leaf or stem, and discharging a venomous fluid when pressed, as in the common nettle.

STIPE.—The trunk that supports the pileus of the Fungi, is denominated the *stipe*—*stipes*.

STIPULES.—The stipules, stipulæ, are small appendages attached to the base of the leaf-stalk of many plants, and resembling leaves in miniature.

STOMATA.—The small and minute openings that occur in the cuticle of the leaves of many plants, occupying the area of the meshes, and formerly known by the name of pores or apertures, are now by the general consent of botanists, denominated *stomata*. No one, as we believe, has found Stomata in the root of any plant, and but rarely in fleshy fruits or bulbs, or in the submersed parts of aquatics, or in plants destitute of tracheæ, or of flowers.

STRAW.—The Straw or culm, culmus, is the trunk of the Grasses, Rushes, Sedges, and of several other plants nearly allied to them. In its figure it is generally cylindrical, as in wheat and barley; but in some plants it is triangular, as in *Schenus* and *Cyperus*. In its structure it is hollow and jointed, as in the Grasses, or solid that is filled with a soft and spongy pith, as in the Bull-rush.

STRIATED.—Marked with parallel lines.

STROBILE.—The Strobile is an indurated amentum, the carpella of which are scale-like, covering naked seeds.

STANDARD.—The upper petal of a papilionaceous flower which is generally large, with an erect border, is denominated the standard.

STEM.—The stem is the trunk of trees, and of the greater part of herbs. It is cylindrical and tapering, as in the Oak and Elm; or compressed as is flat-stalked Pondweed; or quadrangular, as in *Scrophularia*; or jointed, as in the Pink. It is also further distinguished as being simple or compound, solid or tubular, upright or nod-

ding, creeping, climbing, twining. Of these varieties, the last three are the most remarkable. First the creeping stem, which, being too feeble to support itself in an upright position, extends or creeps horizontally along the surface of the earth, and sends down roots at regular intervals, to extract from the soil new supplies of aliment. It is exemplified in *Potentilla reptans*. Secondly, the climbing stem, which, being also too feeble to support itself in an upright position, attaches itself by means of lateral roots, or of other appropriate organs, to other plants, or to other bodies, for support, and thus attains to the elevation proper to the species. It is exemplified in the Vine and Ivy. Thirdly, the twining stem, the most elegant and most singular of them all, which, being also too feeble to support itself in an upright position, ascends not merely by clinging to a prop, but by winding spirally around it; the winding never being effected at random, but always in a specific and determinate manner, which is always the same in the same species of plants. Thus in the Hop plant, *Humulus Lupulus*, the winding proceeds in a direction from left to right, or according to the apparent motion of the sun, and never otherwise; while in *Convolvulus Sepium*, or great Bindweed, it proceeds in a direction from right to left, or contrary to the apparent motion of the sun, and never otherwise. If you attempt to compel the stem to reverse its mode of winding, you kill the plant.

STYLE.—The Style is the middle portion of the Pistil, issuing generally from the upper extremity of the ovary, and bearing the stigma on its summit. It is deciduous, and falls when the ovary is ripe; or permanent, and adheres to the fruit.

SUCCULENT THREADS.—In the centre of the barren flowers of the Mosses, and accompanying the presumed stamens, there is generally to be found a number of jointed and necklace-looking substances which Hedwig without determining their functions, denominated succulent threads.

SUCKER.—Many plants send out a horizontal root from about the collar, which ultimately protrudes a bud that emerges into the air and becomes a little stem, as in *Syringa*. The stem thus produced is a sucker.

SULCATE.—Impressed with deep parallel lines.

SUPERIOR.—Applied to the corolla when its receptacle is above the germen, to the calyx when it is above the germen, and to the germen, when it is included in the corolla or calyx.

SUTURE.—The edges by which two valves unite, are called sutures. In the carpellum, the suture corresponding to the midrib is the dorsal suture; the other, corresponding to the margins, is the ventral suture.

SUTURAL.—A mode of the dehiscence of fruits. See Pericarp.

SYSTEM—The Artificial System of Linnæus, is founded entirely on the *stamens* and *pistils* of the flower, and according to his arrangement, all known plants are distributed into different *classes*, *orders*, *genera*, *species* and *varieties*.

Classes—The classes are the first general division of all vegetables into twenty-four kinds, according to the number, or some other peculiarity of the stamens.

Orders—Each of the twenty-four classes, admit of being subdivided into orders or tribes. These orders are derived from a *secondary* characteristic.

Genera—The orders into which the classes are divided, are again subdivided into genera or families. The genera in their turn, are derived from peculiar characters, which many plants of the same order possess in common to themselves.

Species—Species are a further division of a genus or family of plants into individual plants.

Varieties—With some species of plants, owing to soil, situation or other causes, both the leaves and flower are subject to variation. When this is the case, they are denominated varieties.

OF THE CLASSES.

The characters of the classes are established on six circumstances connected with the stamens.

First—The ten first classes are founded on the *number of stamens alone*; viz.

Monandria,	one stamen.
Diandria,	two stamens.
Triandria,	three stamens.
Tetrandria,	four stamens.
Pentandria,	five stamens.
Hexandria,	six stamens.
Heptandria,	seven stamens.
Octandria,	eight stamens.
Enneandria,	nine stamens.
Decandria,	ten stamens.

Second—The three next classes, are established on the *number and insertion* of the stamens, as being attached to the receptacle, or to the calyx and corolla.

Dodecandria,	12 to 19, to the receptacle.
Icosandria,	20 to 1000, to the calyx, or corolla.
Polyandria,	20 to 1000, to the receptacle.

Third—The fourteenth and fifteenth classes depend on the *number and proportional length* of the stamens.

Didynamia,	two long, two short.
Tetradynamia,	four long, two short.

Fourth—The next four classes are established on a consideration of the stamens being *united* one with another, into one or more parcels; and the class *gynandria*, from the circumstance of their being *united* to the pistil.

Monadelphina,	filaments united into one set.
Diadelphina,	filaments united into two sets.
Polyadelphina,	united into three or more sets.
Syngenesia,	anthers united into a cylinder.
Gynandria,	stamens rising from the pistil.

Fifth—The twenty-first and two following classes are founded on the principle of the stamens being *separate*, that is, not in the same flower, or on the same plant as the pistils.

Monœcia,	both on the same plant.
Diœcia,	both on two plants.
Polygamia,	both on one, two, or three plants.

Sixth—The last class, is constituted by those plants in which the stamens and pistils are *concealed*, or not perceptible to the naked eye.

Cryptogamia concealed fructification.

Division of the Orders—The orders are the secondary divisions of the Linnæan system, and are established upon different principles.

In the first thirteen classes they are founded on the *number of pistils* in each flower.

Monogynia,	one pistil.
Digynia,	two pistils.
Trigynia,	three pistils.
Tetragynia,	four pistils.
Pentagynia,	five pistils.
Hexagynia,	six pistils.
Heptagynia,	seven pistils.
Octagynia,	eight pistils.
Enneagynia,	nine pistils.
Decagynia,	ten pistils.
Dodecagynia,	eleven to 19 pistils.
Polygynia,	twenty or more pistils.

The orders of the class *didynamia*, are taken from the *situation of the seed*.

Gymnospermia,	seeds without a capsule.
Angiospermia,	seeds in a capsule.

The orders of the classes, *monadelphia*, *diadelphia*, *polyadelphia*, and *gynandria*, are established on the *number of stamens*; and consequently called by the same names as the classes.

Monandria,	one stamen.
Diandria,	two stamens.
Triandria,	three stamens.
Polyandria,	many stamens.

The orders of the nineteenth class or *syngenesia*, are taken from the *structure of the flower*.

Polygamia æqualis,	stamens and pistils in ach floret
Polygamia frustranea,	the outer florets neutral.
Polygamia superflua,	only stamens in the outer florets.
Polygamia necessaria,	stamens central, pistils outer.
Polygamia segregata,	a calyx to each floret.

In the classes *monœcia* and *diœcia*, the orders are taken from the *number and other peculiarities of the stamens*.

Monandria,	one stamen.
Diandria,	two stamens.
Triandria, &c.	three stamens, &c.
Polyadelphia,	stamens in three or more sets.

In the twenty-third class, *polygamia*, the orders are established on the *separation of the stamens and pistils*.

Monœcia,	both on one plant.
Diœcia,	both on two plants.
Triœcia,	both on three plants.

The orders of the last class, or *cryptogamia*, are five in number, and founded on the *natural characters* of each production.

Filices,	ferns.
Musci,	mosses.
Hepaticæ,	liverworts.
Algæ,	flags.
Fungi,	mushrooms.

NATURAL METHOD OF JUSSIEU.

The plan of this system was originally formed by Bernard Jussieu, demonstrator of botany at Paris, and published by his nephew, Alexander Lawrence, in 1789, in a work entitled *Genera Plantarum, secundum Ordines Naturales disposita*. The following divisions of this system are founded upon the structure of the seed, whence is derived the distinction of all plants into Acotyledones, destitute of a cotyledon or seed-lobe; Monocotyledones, such as have one cotyledon; and Dicotyledones, such as have two. The classes, amounting to fifteen, (embracing 100 orders,) are distinguished by the number of the cotyledons, petals, &c. and the mode of insertion of the stamens or corolla.

WITHOUT COTYLEDONS.

ORDERS.

GENERA.

CLASS I.—*Analogous to Linnaeus's twenty-fourth class, Cryptogamia.*

- | | |
|-------------|-------------------------|
| 1. Fungi | Agaricus, Boletus, &c. |
| 2. Algæ | Fucus, Lichen, &c. |
| 3. Hepaticæ | Jungermannia, &c. |
| 4. Musci | Hypnum, Bryum, &c. |
| 5. Filices | Pteris, Polypodium, &c. |
| 6. Naiades | Hippuris, Lemna, &c. |

WITH ONE COTYLEDON.

CLASS II.—*Germen superior.*

- | | |
|--------------|------------------------------|
| 7. Aroidæ | Arum, &c. |
| 8. Typhæ | Typha, Sparganium. |
| 9. Cyperoidæ | Cyperus, Carex, Scirpus, &c. |
| 10. Graminæ | The true grasses. |

CLASS III.—*Stamens inserted round the pistil.*

- | | |
|---------------|----------------------------------|
| 11. Palmæ | Phoenix, Cocos, &c. |
| 12. Asparagi | Asparagus, Convolvularia, &c. |
| 13. Junci | Juncus, Butomus, Sagittaria. |
| 14. Lilia | Lilium, Tulipa, Fritillaria, &c. |
| 15. Bromeliæ | Bromelia, Agave. |
| 16. Asphodeli | Asphodelus, Aloe, Hyacinthus. |
| 17. Narcissi | Narcissus, Amaryllis, Galanthus. |
| 18. Irides | Iris, Ixia, Crocus. |

CLASS IV.—*Germen inferior.*

- | | |
|-------------------|----------------------------------|
| 19. Musæ | Plantain-tree and Heliconia. |
| 20. Caninæ | Scitamineæ, as Calappa, Annonum. |
| 21. Orchidæ | Orchis, Ophrys. |
| 22. Hydrocharides | Vallisneria, Stratiotes. |

WITH TWO COTYLEDONS.

CLASS V.—*Without petals, germen inferior.*

- | | |
|------------------|-----------------------|
| 23. Aristolochiæ | Aristolochia, Asarum. |
|------------------|-----------------------|

CLASS VI.—*Without petals, stamens inserted into the calyx.*

- | | |
|---------------|-----------------------------|
| 24. Elæagni | Hippophaë, Thesium, &c. |
| 25. Thymelææ | Daphne, Passerina, &c. |
| 26. Proteæ | Protea, Banksia, Embotrium. |
| 27. Lauri | Laurus, &c. |
| 28. Polygonæ | Polygonum, Rumex, Rhenan. |
| 29. Atriplicæ | Chenopodium, Atriplex, &c. |

CLASS VII.—*Without petals, germen superior.*

- | | |
|----------------|----------------------------|
| 30. Amaranthi | Amaranthus, Celosia. |
| 31. Plantaginæ | Plantago, Littorea. |
| 32. Nyctagines | Mirabilis, Boerhaavia, &c. |
| 33. Plumbaginæ | Plumbago, and Statice. |

CLASS VIII.—*One petal, germen superior.*

- | | |
|------------------|-----------------------------------|
| 34. Lysimachia | Angellia, Primula, &c. |
| 35. Pedicularæ | Pedicularis, Veronica, Euphrasia. |
| 36. Acanthia | Acanthus, Ruellia, Justicia. |
| 37. Jasmineæ | Jasminum, Syringa, Fraxinus. |
| 38. Vitæ | Vitex, Verbena, &c. |
| 39. Labiatæ | Salvia, Lamium, Glechoma, &c. |
| 40. Scrophulariæ | Scrophularia, Digitalis. |
| 41. Solanæ | Solanum, Verbascum, Hyoscyamus. |

ORDERS.

GENERA.

- | | |
|----------------|------------------------------|
| 42. Boraginæ | Borago, Echium. |
| 43. Convolvuli | Convolvulus, Ipomœa. |
| 44. Polemonia | Polemonium, Phlox, &c. |
| 45. Bignonia | Bignonia, Chelone. |
| 46. Gentiane | Gentiana, Chironia, Chloria. |
| 47. Apocynæ | Vinea, Nerium, &c. |
| 48. Sapotæ | Achras, Chrysophyllum. |

CLASS IX.—*One petal inserted into the calyx.*

- | | |
|-----------------|-------------------------------|
| 49. Guaiacæ | Diospyros, Sytrax. |
| 50. Rhododendra | Rhododendrum, Kalmia, Azalea. |
| 51. Ericæ | Erica, Arbutus, Vaccinium. |
| 52. Campanulacæ | Campanula, Trachelium. |

CLASS X.—*One petal, anthers united into a tube.*

- | | |
|--------------------|------------------------------------|
| 53. Cichoracæ | Leontodon, Tragopogon, Sonchus. |
| 54. Cinaroccephalæ | Carduus, Carlinia, Carthamus. |
| 55. Corymbifera | Chrysanthemum, Artemisia, Senecio. |

CLASS XI.—*One petal, germen inferior, anthers distinct.*

- | | |
|----------------|-------------------------------------|
| 56. Dipsacæ | Dipsacus, Scabiosa. |
| 57. Rubiacæ | Galium, Rubia, Coffea. |
| 58. Caprifolia | Lonicera, Sambucus, Cornus, Hedera. |

CLASS XII.—*Several petals, germen inferior.*

- | | |
|-----------------|----------------------------|
| 59. Araliæ | Cussonia, Panax. |
| 60. Umbellifera | Scandix, Angelica, Daucus. |

CLASS XIII.—*Several petals, germen superior.*

- | | |
|-----------------|----------------------------------------|
| 61. Ranunculacæ | Ranunculus, Clematis, Anemone, &c. |
| 62. Papaveracæ | Papaver, Chelidonium. |
| 63. Crucifera | Brassica, Cheiranthus, &c. |
| 64. Capparides | Cleome, Capparis, &c. |
| 65. Sapindi | Sapindus, Paullinia. |
| 66. Aceræ | Acer, &c. |
| 67. Malpighiæ | Malpighia. |
| 68. Hyperici | Hypericum, Ascyrum, &c. |
| 69. Guttifera | Clusia, Garcinia, Mammecia. |
| 70. Aurantia | Citrus, Limonia, Thea, &c. |
| 71. Meliæ | Turra, Aitonia. |
| 72. Vites | Vitis, Cissus. |
| 73. Gerania | Geranium, Impatiens, Oxalis. |
| 74. Malvaceæ | Malva, Lavatera, Hibiscus, and others. |
| 75. Magnoliæ | Magnolia, Liriodendrum. |
| 76. Anonæ | Anona, Uuona. |
| 77. Menispermæ | Menispermum, Cissampelos, &c. |
| 78. Berberides | Berberis, Leontice. |
| 79. Tiliacæ | Tilia, Hermannia, Sparmannia, &c. |
| 80. Cisti | Cistus, &c. |
| 81. Rutacæ | Ruta, Dictamnus. |
| 82. Caryophyllæ | Arenaria, Dianthus, Silene, &c. |

CLASS XIV.—*Several petals, stamens inserted into the calyx or corolla.*

- | | |
|------------------|----------------------------------|
| 83. Sempervivæ | Sempervivum, Cotyledon, Sedum. |
| 84. Saxifragæ | Saxifraga, Chrysosplenium, &c. |
| 85. Cacti | Cactus, Rhus. |
| 86. Portulacæ | Portulaca, &c. |
| 87. Ficoidæ | Mesembryanthemum. |
| 88. Onagræ | Epilobium, Fuchsia. |
| 89. Myrti | Myrtus, Eugenia, Eucalyptus, &c. |
| 90. Melastomæ | Melastoma, Osbeckia. |
| 91. Salicariæ | Lythrum, Peplis, Glaux, &c. |
| 92. Rosacæ | Rosa, Rubus, Prunus. |
| 93. Leguminosæ | Cassia, Trifolium, Vicia. |
| 94. Terebinthacæ | Pistacia, Rhus, &c. |
| 95. Rhamni | Rhamnus, Ilex, Euonymus. |

CLASS XV.—*Stamens in separate flowers from the pistils.*

- | | |
|-----------------|--------------------------------------|
| 96. Euphorbiæ | Euphorbia, Buxus, Croton. |
| 97. Cucurbitacæ | Cucumis, Passiflora, Bryonia, &c. |
| 98. Urticæ | Urtica, Ficus, Humulus, Cannabis. |
| 99. Amantacæ | Salix, Populus, Betula, Quercus, &c. |
| 100. Conifera | Juniperus, Cupressus. |

TAIL.—The Tail, *Cauda*, is an elongated and feather-like appendage surmounting the apex of the seed, but formed of the persistent style, as in *Clematis*.

TAXONOMY.—This Greek compound is by some writers made use of to denote that department of Botany in which plants are classified, or arranged into a system.

TENDRIL.—The tendril is a thread-shaped and generally spiral process issuing from the stem, branch, or petiole, and sometimes even from the expansion of the leaf itself: being an organ by which plants of weak and climbing stems attach themselves to other plants, or to other substances for support, and being always much stronger than a branch of the same size. In attaching itself to its supporter, it generally twists itself round, till it has taken so many circumnutations, as to make its hold secure. But what is very singular is, that there are some plants, as *Bryonia*, whose tendrils, after performing a certain number of circumnutations in one direction, twist themselves about spontaneously, and perform their future circumnutations in a contrary direction. But all tendrils do not twist round their supporter. Those of *Vitis hederaea*, the Virginian creeper, terminate ultimately in a flat and fleshy process, by which they can attach themselves, in default of better support, even to the surface of a brick or stone wall.

TEPALS.—The parts or divisions of a perianth, strictly so called are tepals. Thus the perianth of the *Tulip*, is six-tpalled, first green, and then becoming coloured.

TERGEMINATE.—When a compound leaf resembles the bigeminate in its foot-stalk divisions, and has besides, a third pair of leaflets, at the point where the secondary leaf-stalks originate.

TERMINAL.—Applied to parts, when they are at the end of a branch or stem.

TERNATE.—When leaves stand by threes round the stem.

TESTA.—This term was employed by Gærtner, to denote the outer coat of the seed. It is equivalent to the primum of Mirbel.

THALAMUS.—The receptacle of the flower is sometimes denominated the thalamus, or torus, or ciliunum.

THALLUS.—The frond of Cryptogamous plants that bears the fructification, whether by seeds or sporules, is denominated the thallus.

THECA.—The theca is the urn or capsule, that contains the seeds or sporules of the mosses.

THORN.—The thorn is a species of armature, originating in the wood, being an abortive and indurated bud, and exemplified in the genus *Mimosa*, or *Cratægus*; the former presenting in some of its species, a host of spears, that is, impenetrable even to the rhinoceros; and the latter, a barrier sufficiently formidable to prevent the incursions of cattle, as in our *Quicksets*.

THYRSE.—The Thyrsé, is a species of inflorescence, being an assemblage of flowers supported upon a primary peduncle, subdivided as in the branching panicle; but differing from it in having the lower or partial peduncles longer and placed in a horizontal or expanding direction; and the upper ones shorter and more erect. It is exemplified in *Syringa vulgaris*, and in the Vine.

TOMENTOSE.—Covered with a downy pubescence.

TRICHOTOMOUS.—Divided into three branches.

TRICUSPID.—Terminating in three rigid spines.

TRIFID.—Three-cleft.

TRIPARTITE.—A lacinated leaf divided into three parts.

TRIPINNATE.—In a compound leaf when along the sides of a common petiole, there are secondary footstalks supporting a ternary set, which are pinnate.

TROWEL-SHAPED.—(Deltoid) When a leaf has three angles, and represents the Greek letter Delta.

TRUNCATED.—If a root bears the appearance of a fusiform

root, suddenly cut off, it is then termed a truncated or bitten root.

TRUNK.—The trunk, or caudex ascendens of Linnæus, is that part of the plant which springs immediately from the root, and ascends in a vertical position above the surface of the soil, supporting the branches, and constituting for the most part the principal bulk of the individual. It is a term taken from the Latin *truncus*, and has the same signification among botanists which it had among the ancient classics.

TUBE.—The lower part of a monopetalous corolla, being generally of a cylindrical form, is by botanists denominated the tube.

TUBEROUS ROOT.—Some roots are tuberous that is, giving origin to a tuber or tubercle, or, as botanists now call it, a subterranean stem, or to several such stems united in a cluster. If the tuber is single, it is generally solid, as in *Bunium Bulbocastanum*. If the tubers are not single, they are often in pairs, as in *Orchis mascula* or early *Orchis*.

TUBULAR.—Approaching very near in figure to the campanulate, like the flower of *Digitalis purpurea*.

TUFT.—The tuft is a hair-like or plume-like substance, forming the appendage of some seeds, as that of *Epilobium* and *Asclepias*.

TUMOURS.—Tumours are irregular enlargements of the organs of the vegetable, disfiguring, but not always injuring, the plant.

TWINING STEM.—The twining stem is a stem that ascends its prop spirally and uniformly, in direction either from right to left, or the contrary, and never otherwise. [See the article *STEM*.]

UMBEL.—The umbel is a mode of flowering, in which a number of flower-stalks issuing from a common centre, diverge like the rays of an umbrella, bearing their flowers on the summit, and raising them to about the same height. The Carrot, Parsnip, and common Hemlock are familiar examples. If the rays of the Umbel are undivided, so that an individual ray supports but a single flower, as in *Hydrocotyle*, the Umbel is said to be simple. But if rays of the primary Umbel are themselves subdivided, so as to form and support secondary Umbels, as in *Heracleum*, and most umbellate plants, the Umbel is then said to be compound. It is terminal, as in the Carrot, or lateral, as in *Caulis nodiflora*.

UMBILICUS.—The Umbilicus is merely another term for the hilum or scar, which is occasioned by the fracture of the umbilical cord.

UMBILICAL CORD.—The thread-like process by which some seeds are attached to the placenta, is the umbilical cord, already described in the article *Funiculus*.

UNARMED.—Devoid of spines or thorns.

UNCINATE.—Curved like a hook.

UNDERSHRUB.—Undershrubs are plants, perishing either wholly or in part; but sometimes surviving by their woody parts for more than one year, as *Tree Mignonette*.

UNDULATED.—Margins waved obtusely up and down.

UNEQUAL.—Having two halves of unequal size.

UNGUIS.—The Unguis is merely the Latin term for that part of a petal which we have already defined under the head of the article *Claw*.

UTRICLE.—The Utricle is a small bladder, like capsules, consisting of one cell and one seed. Gærtner exemplifies it in *Chenopodium* and *Clematis*, in which Sir J. E. Smith seems to regard it as being merely cuticle.

VALVES.—The several distinct pieces into which the pericarp spontaneously separates, when the fruit is ripe, are denominated valves. All pericarps do not open in the same manner, but all individuals of the same species open in the same manner; and the persistent axis from which they separate is called the columella.

The external surface of the valves is generally convex, and marked with a longitudinal furrow; but there are cases in which it is transverse, as in *Anagallis*. [See *Pericarp*.]

VASCULAR ORGANS.—In the analysis of vegetable fabric, the organs of which the plant are composed are found to be reducible either to epidermoid laminae, or to cells or to longitudinal fibres. The two former we have already described under the heads of the Epidermis and the Cellular Tissue. We now proceed to the latter. Are the fibres of plants tubular?

If the stem of a plant of Marigold is divided by means of a transverse section, the divided extremities of the longitudinal fibres arranged in a circular row, immediately within the bark, will be distinctly seen, and their tubular structure demonstrated, by means of the orifices which they present, particularly when the stem has begun to wither. The tubular structure of woody plants is not so easily demonstrated. We might infer it however from the force and facility with which the sap ascends to the very summit of the stem in the spring and summer, and there are some cases in which we may discern it, even with the naked eye. On the horizontal section of a piece of wood that has been long exposed to the action of the atmosphere, the orifices of the longitudinal tubes will appear arranged in circular rows, in the direction of the concentric layers. Further, Hedwig affirms that he observed them on the transverse section of a branch of the Pear-tree detached even in the spring, when the sap was flowing. [*De Fib. Veg. Oct. sect. 1.*]

Hence we believe that the longitudinal fibres of plants are in fact longitudinal tubes, conveying the alimentary juices. They exhibit a considerable variety of structure, and have been distributed by botanists into several distinct species.

VAULT.—The Vault is a process issuing from the upper extremity of the tube of a Monopetalous corolla; Linnæus regarded it as a nectary

VEIL.—The Veil or curtain is a fine and delicate membrane that unites the circumference of the Pileus to the circumference of the stem of the Fungi, and protects the Gills.

VEINS.—The ramifications of the Petiole, as dispersed throughout the expansion of the leaf are very generally called Veins; and under certain modifications they are also called nerves.

VERNATION.—The leafing of plants is, in the language of Linnæus their vernation or foliation.

VESICULE.—The little air bags or bladders that serve to float

the leaves of the Fuci and various other plants are designated by the appellation of Vesiculæ.

VILLOUS.—Parts covered with long soft hairs.

VISCID.—Parts covered with a clammy juice.

VITELLUS.—The Vitellus is a peculiar organ proper to the seeds of certain orders of plants. In Grasses it occurs in the form of a small scale interposed between the albumen and embryo, but it takes no development in germination.

VOLVA.—The Volva or wrapper, is a sort of radical and membranous integument peculiar to certain species of Agarics, which envelopes them entirely in the early stage of their growth, and then bursts open and unfolds the plants.

WEDGE-SHAPED.—Cuneiform, broad at the base, and tapering towards the point.

WHEEL-SHAPED.—Rotate or Wheel-shaped, when the corolla spreads without any tube, as in *Dulcamara*.

WHORL.—The Whorl is a mode of flowering in which the flowers are placed around the stem or branch as a common axis, in the form of a ring. The Verticillate flowers of Tournefort, or Labiate flowers of Linnæus afford the best examples. The Whorl is said to be sessile or pedicled, according as the individual flowers composing it are sessile or pedicled. In some plants the Whorls stand close to one another, in others they stand wide apart; in some they are naked, that is without leaves; in others they are interspersed with small leaves or bractes, as in *Ajuga reptans*.

WING.—The two side petals of papilionaceous flowers are denominated the wings; and the membranaceous appendage that issues from the side or apex of some seeds, as that of *Syringa*, is also denominated the wing.

WINGED-LEAF.—The winged-leaf is a species of compound leaf, having leaflets or distinct expansion arranged on opposite sides of the petiole, as in the Pea and Vetch. If the insertions of the leaflets are opposite, the leaf is said to be oppositely winged; and if they are alternate, the leaf is said to be alternately winged. If the petiole supports an odd leaflet at the extremity, the leaf is said to be unequally winged; if it does not support an odd leaflet, then the leaf is said to be abruptly winged.

WOOD.—In trees or shrubs the body of the caudex, whether ascending or descending, consists chiefly of a firm and compact substance, called wood; the central portion or pith, and the external portion or bark, being but small in comparison. The horizontal section of an Oak-tree or of an Ash will demonstrate this distinctly.



