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THE
AMERICAN FLORA,
OR
HISTORY OF PLANTS AND WILD FLOWERS:

CONTAINING
THEIR SCIENTIFIC AND GENERAL DESCRIPTION,
NATURAL HISTORY,
CHEMICAL AND MEDICAL PROPERTIES, MODE OF CULTURE, PROPAGATION, &C.

DESIGNED
AS A BOOK OF REFERENCE FOR BOTANISTS, PHYSICIANS, FLORISTS, GARDENERS,
STUDENTS, ETC.

~~~~~  
BY A. B. STRONG, M. D.  
~~~~~

VOL. IV.

IS ILLUSTRATED WITH
SEVENTY BEAUTIFUL COLORED ENGRAVINGS,
TAKEN FROM NATURE.

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NEW-YORK:  
PUBLISHED BY HULL & SPENCER,  
12 ANN STREET.  
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## INTRODUCTION.

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THE perfection of an art, consists in the employment of a comprehensive system of laws, commensurate to every purpose within its scope, but concealed from the eye of the spectator ; and in the production of effects that seem to flow forth spontaneously, as though uncontrolled by their influence, and which are equally excellent, whether regarded individually, or in reference to the proposed result. Such is the great art of nature ; and he who would study with success, must, as far as he is able, trace out its various laws, and reduce them to general principles. Applying these principles to the study of Botany, we shall find the most perfect art. It is a theme which can employ the mind of many a person, and one that will afford him much agreeable pleasure. By the study of Botany we shall be benefitted ; for all our walks, in every mountain, in every glen, and meadow, on the bank of every little brook, and the way-side, will afford us an opportunity to find employment for the mind, and lead our thoughts from nature up to nature's God. We shall be much more attentive to all the peculiar properties and relations of plants to the rest of created matter. We shall feel a desire to discover the use of the plant, however small and insignificant to man, remembering that nothing was made in vain. We shall often be led to exclaim,—“ How wonderful, sublime, and yet how beautiful are the works of nature ! ” Plants, shrubs, and even the majestic forest trees, all take their turn in life, and like the human family, wither when old, and become nourishment for a new generation. It is believed that plants enjoy pleasure and experience pain, and are as sensitive at the disturbances of the laws of nature as the animal creation. We cut or wound any part of a plant, and it bleeds. How mysteriously nature has devised to restore the injury or heal the wound ! Plants do not walk or move, in order to procure their sustenance, like animals ; yet there are many peculiarities connected with their mode of living, the history

of which would be highly interesting, both to the professor and student. Every variety of plant and shrub has its own peculiar manner of sustenance in life, requiring different soils, climate, &c. Few, however, possess the power of locomotion; the natural order, *Confervæ*, alone, we believe, enjoying that privilege; and, perhaps, of all plants, they alone consist of solitary individuals. Other plants are composed of communities, the buds being the inhabitants, the stems consisting of store-rooms and galleries, the little spongy bodies at the extremities of the roots being the true locomotive organs. But as trees do not walk upon the surface of the earth, they in other respects exhibit abundant instances of spontaneous motion. For example, the tendency of plants to incline their stems, and turn the upper surface of their leaves to the light; the direction which the extreme fibres of the root will often take to escape the light, or to reach the best nourishment; the folding up of the flower on the approach of rain; the rising and falling of the water-lily; and the peculiar and invariable direction assumed by the twining stem in ascending its prop.

If a pan of water be placed within six inches on either side of the stem of a young pumpkin or vegetable marrow, it will in the course of the night approach it, and will be found in the morning with one of its leaves floating in the water. This experiment may be continued nightly, until the plant begins to fruit.

If a prop be placed within six inches of a young convolvulus, or scarlet runner, it will find it, although the prop may be shifted daily. If after it has twined some distance up the prop, it be unwound and twined in an opposite direction it will return to its original position, or die in the attempt; yet, notwithstanding, if two of these plants grow near each other, and have no stake near, on which they can entwine, one of them will alter the direction of its spiral, and they will twine round each other. A very interesting experiment was tried by placing some kidney beans in a cylinder of moist earth: after a short time they commenced to germinate, of course sending the plume upwards to the light, and the root down into the soil. After a few days the cylinder was turned one-fourth round, and again this was repeated until an entire revolution of the cylinder had been completed. The beans were then taken out of the cylinder, and it was found that both the plume and radical had bent to accommodate themselves to every revolution,

and the one in its effort to ascend perpendicularly, and the other to descend, they had formed a perfect spiral. But although the natural tendency of the root is downwards, if the soil be dry, and any damp substance be placed above, the roots will ascend to reach it. Or, if the shrub or tree has taken root upon the side of a precipice, and the soil be somewhat nearer above than below, the plant will send a root in a straight line to meet it. In support of the above fact, we would cite a singular coincidence, or freak of nature, fully illustrating the natural instinct of the vegetable creation; and one which, perhaps, may have been witnessed by some of our readers. Upon the precipice, or side of the perpendicular rocks of the natural bridge in Virginia, are to be seen goodly-sized trees, which first took root in the crevice of the rock some several feet down from the surface of the earth; growing in this situation until the trees had exhausted all the nourishment which could be obtained in those crevices, and the distance being extremely great beneath, they, in seeking for the necessary support of life, sent up numerous roots to the rich soil above. The curiosity of many a visitor to this remarkable place has been excited in regard to the situation and sustenance of those trees; there they now stand as living monuments in proof of the powerful and natural instinct of plants.

A tree growing from an old wall, or cleft of a rock, will, as soon as it has exhausted the surrounding soil, send a stem or root down to the soil beneath; and Stevens, in his searches among the ruins of Central America, found magnificent trees, of extraordinary size and of a great height, living upon the very tops of some of the highest walls of the deserted edifice of a lost race, which having sent stems down to the soil on each side of the wall, and forming by this means a firm support, and being thus, as it were, strapped together by living cables, they remain to this day in their full vigor and strength.

The plants in a hot-house do not direct their leaves to the stove in quest of heat, nor to the door in quest of air, but to the sun in quest of light. Plants in a cellar or dark room struggle towards the light; plants in an area turn the upper surface of their leaves towards it, and, on the contrary, their roots suddenly avoid it.

The tendril of a vine, or the stem of a creeping plant, never makes any turn until it comes in contact with some object around which it can entwine;

after which it proceeds in a spiral around the object held in its embrace. The strawberry-plant will thrust its runners completely across a garden walk on to a bed of soil on the opposite side ; where it will for the first time, as it were perceiving its object to be gained, push out roots, and form a new plant. Trees are frequently found, which have taken root on one side of a deep ravine, and having exhausted the sterile soil on that side, have pushed their roots across the abyss, and having gained the opposite side, there struck deep into the fertile soil.

The above few preliminary remarks are introduced for the purpose of showing the importance of studying this branch of science ; and in order to make the present volume as instructive, useful and entertaining as possible, the proprietors have made extensive outlays for the improvement of the embellishments, as well as the general appearance of the current volume ; and feeling grateful for the more than expected patronage they have received since the introduction of the work, they would return their sincere thanks to their subscribers, still asking a continuance of their patronage and co-operation in extending still farther its circulation.





1. *Goldfussia anisophylla*.  
2. *Phlox Drummondii*.



## NAT. ORDER.

### *Polemoniaceæ.*

---

PHLOX DRUMMONDI.

MR. DRUMMOND'S PHLOX.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, deeply five-cleft. *Segments*, acute. *Corolla*, salver-shaped, with a sub-cylindrical tube, a little curved. *Stamens*, five, unequal, inserted in the tube above the middle. *Filaments*, filiform. *Anthers*, sagitate. *Capsule*, roundish.

*Spe. Char.* *Stems*, erect, simple at the bottom. *Leaves*, ovate-lanceolate, lower ones opposite, upper ones alternate. *Panicle*, corymbose.

PHLOX DRUMMONDI has a small and decidedly annual *root*. *Stem* a foot or more high, simple or branched, clothed with long patent hairs; *leaves* below opposite and oblong, spatulate above, alternate, oblong, acute, aristate, somewhat cordate at the base, sometimes even auriculated and semiamplexicaul, ciliated at the margin, and slightly hairy, but chiefly so beneath, all of them of a pale green color; *corymbs* terminal, of several large and very showy flowers; *pedicels* short, and as well as the calyx and subulate segments, but united by a pellucid membrane for one-half of their length into a tube; the limb reflexed corolla, hypocrateriform with the tube, about thrice as long as the tube of the calyx, and very hairy, with the hairs patent; the *limb* of five spreading, obovate, approaching to rhomboidal; *lobes* pale, purple without, within, or on the upper side, of a brilliant rose-red or purple, varying exceedingly on different individuals in intensity, and in their more or less red or purple tinge; the eye generally of an exceedingly deep crimson; *stamens* completely within the tube, but at differ-

ent heights; the *filaments*, for almost their whole length, combined with the corolla; *germen* ovate; *style* short; *stigmas* three, as long as the style; *capsule* ovate-globose, beautifully dotted, tipped with the persistent style, and included within the persistent style.

Among the many curious plants which attracted Mr. Drummond's attention during his journeyings in Texas, was the present very handsome species of Phlox. The seeds which he sent to England in the early part of the year 1835, soon vegetated, the plants blossomed most copiously, and with equal profusion and brilliancy of color, whether in the green-house or in the open border; and it bids fair to be a great ornament to the gardens of our country. Hence, it was determined to call it Phlox Drummondi, who was its discoverer on the plains of Texas, and who fell a sacrifice to his indefatigable exertions in exploring that portion of our country for the purpose of investigating its botanical riches.

*Propagation and Culture.* All the species are worth cultivating. A mixture of loam, peat and sand, is the best soil for them: cuttings will strike root in sand under a hand-glass.

## NAT. ORDER.

### *Acanthaceæ.*

---

GOLDFUSSIA ANISOPHYLLA. UNEQUAL-LEAVED GOLDFUSSIA.

*Class XIV.* DIDYNAMIA. *Order II.* ANGIOSPERMIA.

*Gen. Char.* *Calyx*, five-parted, unequal. *Corolla*, bell-form. *Stamens*, often very short, reflex. *Anthers*, changeable. *Stigma*, simple. *Capsule*, six-angular, two-valved.

*Spe. Char.* *Leaves*, oblong, candato-acuminate, opposite, very small.

This *plant* is from one and a half to two feet high, much branched and glabrous: *branches* zig-zag, patent or even, recurved, compressed, slightly winged; the *leaves* are distichous, opposite, though appearing alternate by the abortion of one of every pair alternately, broadly lanceolate, acuminate-candate, serrated, above dark-green, with prominent nerves, beneath pale, with sunken nerves: when held between the eye and the light, copious small pellucid lines, generally lying in a transverse direction, are visible; *petiole* short, flat above, keeled below, slightly winged at the margin, abortive leaf very small, lanceolate, acuminate, with an obscure central nerve, sometimes altogether wanting; *peduncles* axillary, but inclined downwards, so that they are in a measure concealed under the spreading leaves and branches; *peduncles* from the axil of the fully-formed leaf; rarely one rises from the opposite side also; an inch or an inch and a half long, bearing a terminal, sessile, glomerule, and sometimes one or two lateral ones of two to three flowers, and these subtended by about as many small bracteas; *calyx* very small, of five deep, linear-lanceolate, erect, equal pale yellow-green segments, clothed with glandular hairs; *corolla* funnel-shaped, the throat slightly compressed; the *limb* a little irregu-

lar, within hairy, the whole purplish-blue, prettily variegated and veined with pale marks of the same color, and red and yellow; *anthers* and *filaments* white; *style* clavato-acuminate.

This beautiful plant was found by Francis de Sylva, at Sighet; and though Dr. Wallick introduced it to European gardens, where it is a great ornament, flowering during the winter and spring months. The flowers are handsome, but in a measure concealed by the distichous foliage, under which they seem to insinuate themselves, though they originate in the upper axis of the leaf. The leaves themselves have a striking peculiarity in exhibiting the costa and nerves prominent on the *upper* side of the leaf, and sunk into the substance of the leaf (the costa excepted, which is slightly prominent), on the *under side*. On each side of the nerve, however, on the upper side, the parenchyme forms a closely-placed elevated line.

*Medical Properties and Uses.* The medical properties of this foreign plant have not been regarded by physicians of sufficient importance to entitle it a place among the catalogue of medicines; yet it possesses properties similar to the *Atropa belladonna*, (see Vol. i. p. 23.) It is eaten indiscriminately by horses and cattle, without apparently any bad effects; but, on distillation, it is found to possess slightly narcotic and poisonous properties.





*Rhododendron arboreum*

## NAT. ORDER.

### *Ericæ.*

---

RHODODENDRON ARBOREUM. TREE RHODODENDRON.

*Var.*—ALBUM. WHITE-FLOWERED *Variety.*

*Class X.* DECANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, five-parted. *Corolla*, somewhat funnel-form or campanulate: limb variously five-cleft or lobed. *Stamens*, five to ten, declined. *Anthers*, opening by two terminal pores. *Capsules*, five-celled, five-valved, opening at the summit.

*Spe. Char.* *Leaves*, alternate, oval, entire, subrevolute on the margins, glaucous-pubescent beneath. *Flowers*, mostly in terminal corymbose clusters. *Corolla*, deeply divided into three segments, of which the upper one is much the broadest, two or three-lobed at the end.

THIS is a handsome flowering *shrub*, remarkable for the appearing of the flowers in May, before the leaves are expanded. The stems are about two feet high, dividing at their tops into many erect, slender, flowering branches. Each branch, while yet naked of foliage, has a terminal corymbose cluster of half a dozen white flowers.

The *corolla* is about an inch long; the *stamens* are curved downwards, about equal to the corolla, but rather shorter than the style. This plant corresponds with the Linnæan *Rhododendron* in all respects save the very irregular corolla; and even in this it is not essentially different. The various species of the *Rhododendron* seem to appear to be subject to much variation in the size and color of the flowers, if we judge from the figures with which we are acquainted. The *native* plant produces comparatively small flowers, and are of a

delicate pink or rose color. But no plant when cultivated produces a flower more desirable or more ornamental for an American border or shrubbery. It is a plant that will produce its flowers in April, by a little forcing, at a time when rich flowers are more pleasing than at any other season of the year. An idea in reference to this plant has been started, that "if a hybrid variety could be obtained between *Rhododendron arboreum* and some one of our hardy species, the result would be a more robust constitution on the one hand, and a greater brilliancy of color on the other; and also, that if the pollen of the *Rhododendron arboreum* could be employed, the stature of the hybrid would also be increased." This suggestion has to a certain extent been carried out. The pistil of the *Rhododendron ponticum* has been fertilized with the pollen of the *Rhododendron arboreum*, and the result has been that highly ornamental shrubby one produced equally hardy with the *Rhododendron ponticum*, equally splendid in regard to the size and color of the flowers with the *Rhododendron arboreum*, and blossoming earlier by nearly six weeks than the common sorts. Take this plant all in all, few are better calculated to enliven a collection than the present.

*Propagation and Culture.* Of all the genera in existence, *Rhododendron* comprises the most handsome, elegant and showy shrubs, well fitted for adorning shrubberies, or to be grown singly on lawns.

All the species grow best on peat soil, or very sandy loam, or vegetable mould: they are either increased by layers or by seeds. When raised in the latter way, the seeds must be sown early in the spring, in flat pans or pots, filled with peat earth, and covered very slightly; the pots or pans should then be set in a close frame, or at the front of a hot-house, till the plants come up, watering them very slightly when dry; and as soon as the seedlings have grown high enough to be laid hold of, they should be planted out into other pans or pots, filled with the same kind of mould; after which they may stand in a close frame for a few days, until they have struck fresh roots; and afterwards hardened to the air by degrees. The smaller



kinds of *Rhododendron* may be propagated freely by cuttings taken off from young wood, and planted in sand, placing a bell-glass over them. There are now in the gardens a great many hybrid kinds of *Rhododendron*, and they are still increasing in number; some of which outvie the species in splendor. The species natives of Nipal, China and Japan, in mild winters, would probably succeed in the open air, but they will not survive a severe winter without protection; they are therefore best kept in pots, and placed among other green-house or frame plants. *Rhododendron arboreum* and *Rhododendron album* are among the most showy of the species, and are well adapted for conservatories, or to be placed in large tubs in the green-house. Young cuttings of the tender kinds, if torn off close to the stem, and planted in a pot of sand, will strike root readily: the pot should be plunged in peat under a hand-glass.

For *Medical Properties and Uses of Rhododendron*, see Vol. ii. page 24.

## NAT. ORDER.

### *Onagrariae.*

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FUCHSIA GLOBOSA. BALLOON-FLOWERED FUCHSIA.

*Class VIII.* OCTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, tubular-funnel form, colored, deciduous. *Petals*, four, in the throat of the calyx, alternate with its segments: nectary an eight-furrowed gland. *Stamens*, eight. *Berry*, oblong, obtuse, four-cornered. *Flowers*, more often naked, red, rarely white.

*Spe. Char.* *Leaves*, opposite, petioled, ovate, acute, slightly serrated, smooth. *Flowers*, on long filiform peduncles, pendulous. *Calyx*, of four scarlet sepals, united into a long tube, broad throat, much larger than the included. *Berry*, purple.

THE difficulty of discriminating these different kinds of Fuchsia, now so common in our gardens, of which *Fuchsia macrostemma* may be considered the original type, has been felt by every one who has turned his attention to the subject; and this difficulty has been increased by cultivation and the skill of the horticulturist in fertilizing one kind with the farina of another; so that what few characters were supposed to exist to entitle them to rank as species, are, of necessity, obliterated. Closely allied as the present is to that which goes under the name of *Fuchsia gracilis*, it will, nevertheless, we think, be found distinct; and possesses one strong claim to our attention, inasmuch as it is a native of the most southern portions of our continent.

*Propagation and Culture.* The elegance of the flowers, and foliage of all the species of Fuchsia are well known to every lover of



1. *Crocus sativus*  
2. *Fuchsia globosa*



plants. They all thrive well in rich light soil, and young cuttings of them strike root readily in the same kind of soil, with a hand-glass over them; the glass to be taken off occasionally, to give the cuttings air, so as to keep them free from damp. Most of the species only require to be protected from frost, and many of them will survive the winter in the open air, with a very slight protection. Some of them, as *Fuchsia gracilis*, *Fuchsia mycrophylla*, *Fuchsia thymifolia*, *Fuchsia conica*, and *Fuchsia coccinea*, have a fine effect all summer, when planted in clumps on lawns, or in borders; in this situation the plants only require to be mulched at the root to preserve them through the winter, and in spring the ground is cleared, and the stems of the preceding year, which are generally dead, are cut off quite close to the ground, to allow the young shoots to spring from the roots.

Capt. King says of this plant, that he has seen the *Fuchsia* in full flower, within a very short distance of the base of a mountain, covered for two-thirds down with snow, and with the temperature at 36 degrees. But it was found mostly in sheltered spots. We may remark of this plant that it is possible the same species of *Fuchsia* may inhabit the valleys of the Chilian Andes, as well as the almost antarctic regions of Terra del Fuego, and in such widely different latitudes it may put on different appearances.

## NAT. ORDER.

### *Iridaceæ.*

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CROCUS SATIVUS.

SAFFRON CROCUS.

*Class III.* TRIANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Corolla*, six-parted, equal. *Perianth*, funnel-form, the segments united at the base into a long and slender tube. *Stigma*, three-cleft, convolute, crested. *Stamens*, three, alternate with three petals. *Anthers*, two-celled, extreme.

*Spe. Char.* *Leaves*, linear, revolute at the margins. *Stigma*, three-parted, as long as the corolla, reflexed. *Stem*, bulbous. *Flower*, nearly or quite sessile.

THE *root* of this plant is bulbous, perennial; the *flower* appears after the leaves, rising very little above the ground, upon a slender, succulent tube; the *leaves* rise higher than the flower, and are linear, simple, radical, of a rich green color, with a white line running in the centre, and are at the base incurved along with the tube of the flower in a membraneous sheath; the *flower* is large, of a bluish-purple or lilac color; the *corolla* consists of six petals, which are nearly elliptical, equal, and turned inwards at the edges; the *filaments* are three, short, tapering, and support long, erect, yellow anthers; the *germen* is roundish, from which issues a slender style, terminated by three long, convoluted stigmas, of a deep yellow color; the *capsule* is roundish, three-lobed, three-celled, three-valved, and contains several round seeds. It flowers in September and October.

The common variety has a yellow perianth. Although this plant was unknown to Ray, Miller, and several other English botanists, yet many pretend to say that it is a native of England. We think that

from all we can learn it is a native of Asia. It has long been cultivated in many countries; but the English Saffron is generally preferred here to that which is imported from other countries, and may be distinguished by its being larger and broader. All the different plants of this genus are by Linnæus considered only as varieties of the *Crocus sativus*. Jacquin, however, makes a distinct species of the Spring Crocus: in that he has been followed by Curtis; and Miller, who describes four species of this family, thinks all of them must be allowed to be specifically different, since they do not vary from each other. The stigmata of the Crocus which we have given, and which constitutes the officinal Saffron, are easily to be distinguished from those of the other varieties, and are in the places where it is chiefly cultivated prepared for use in the following manner. In autumn, when the flowers appear, they are gathered every morning, and are spread upon a table; the stigmata, along with a portion of the style, are then picked from the other parts of the flowers, which are thrown away as useless. The stigmata being thus collected in sufficient quantity, are then dried, which is effected by means of portable kilns, of a peculiar construction, over which a hair cloth is stretched; and upon this are placed a few sheets of white paper, on which the stigmata are strewed, about two or three inches thick, and then covered with several sheets of paper, over which is laid a coarse blanket, five or six times folded, or a canvas bag filled with straw; and when the fire has heated the kiln, a board, on which a weight is put, is placed upon the blanket, in order to press the Saffron into a cake. For the first hour a pretty strong fire is employed; the Saffron is then found to be formed into a cake, which, after being turned, is subjected for another hour to the same degree of heat: it is then turned a second time, and a more gentle heat is applied for about twenty-four hours, or till the cake becomes dry, during which time it is turned every half hour.

According to the Grecian mythology, the name of this flower is derived from *Crocus*, a youth who was consumed by the ardor of his love for the nymph, *Smilax*, and afterwards changed into the flower

which bears his name. It is the same as the Crocus of the Latins, and Saffaran of the Arabians. It was held in much estimation by the Hebrews, who called it Carcom, and was greatly celebrated in ancient times, both by physicians and poets.

*Chemical Properties and Analysis.* Saffron, prepared as above stated, has a powerful, penetrating, diffusive smell, and a warm, pungent, bitterish taste. It gives out the whole of its virtues and color to rectified spirit, proof spirit, wine, vinegar and water: about three parts in four of the Saffron are taken up by each of these menstrua; and the matter which remains undissolved is inodorous, insipid, and of a pale clay color. The acetous, and even the vinous tincture of Saffron, on long keeping, lose a little of their color and strength, but those made with rectified spirit remain in perfection for years. In distillation it impregnates water strongly with its flavor: if the quantity of Saffron is large, a small portion of a fragrant and very pungent essential oil may be collected, amounting, as is said by Vogel, to about a drachm and a half from sixteen ounces. Rectified spirit elevates also a considerable share of its flavor, but leaves much the greater part concentrated in the extract.

*Medical Properties and Uses.* As a medicine, Saffron was considered to be very powerful. Schroeder asserts, that if taken to the quantity of two or three drachms it proves fatal; and by several authors we are informed, that in large doses it produced cephalagia, intoxication and mania. We are also assured, that it penetrates every part of the body, tinging the solids and excretions with a yellow color; and that even the odor or effluvia of this drug have been known to produce deleterious effects. It appears, however, from the experiments of Dr. Alexander, that Saffron possesses but very little active power, and may be taken in considerable quantities without producing any remarkable effect; and it was lately given in the Edinburgh Infirmary by Dr. Henry Cullen, even to the extent of half an ounce a day in several hysterical cases, without any sensible effect whatever.

From the foregoing authority it would appear that Saffron, as a



From the foregoing authority it would appear that Saffron, as a medicine, was of very little consequence; but modern authors have given us new light on this plant; and it is now considered as one of our most valuable domestic medicines; it is in common use all over the country; raised in almost every farmer's garden, in small beds or patches, and when in blossom makes a very gay appearance. Although the odorous part of Saffron arises in distillation with either menstruum, yet a great portion of fixed matter is obtained in the extract; but the extract from water is very much changed from the nature of the entire Saffron. That made from the spirit of wine retains the sensible qualities of the Saffron more entirely; but as there has been some dissipation of the odorous and volatile parts, we can hardly suppose that the concentrated tincture, or extract, can obtain the whole of the medicinal substance of the entire Saffron.

We deem it proper to give here as well as we can, the chemical history of this famous drug; but would remark, that from this chemical history we learn nothing towards pointing out or explaining the medicinal powers; nor, indeed, more from these than may be learned from its sensible qualities. By these, being of some acrimony both in smell and taste, it would seem that Saffron might be very active with respect to the human body. Some writers on the *Materia Medica* have spoken of it in the highest terms as an active medicine. But their reports, in some instances of its effects, appear somewhat extravagant, though often repeated. Frequent experiments in practice do not always support the opinions that have generally been entertained of it. I have frequently administered this medicine in large doses, without perceiving the least sensible effects, and in many instances without increasing the frequency of the pulse. As an anodyne, or antispasmodic, I have considered it to possess very limited powers, scarcely ever observing any such effects in its operation; but as a diaphoretic, it is now universally acknowledged to possess highly valuable properties, and as such it is brought into general use by practitioners throughout the country. In all eruptive

diseases, I have found the Saffron very serviceable; in small pox, scarlet fever, measles, cankered throat, &c., the Saffron may be employed with decided benefit; it promotes perspiration very readily, and has a peculiar tendency to expel the eruption or humor to the surface of the body.

The Saffron has also been considered famous for its supposed emmenagogue properties; and in some instances I have reason to believe that it has manifested such powers, but in many other instances, though repeatedly employed in large doses, it has entirely disappointed my expectations.

*Propagation and Culture.* The culture in all the varieties of this plant is easily effected, by planting the buds of offsets taken from the roots; the *Crocus officinalis* should be planted in July, or the beginning of August; and the *Crocus sativus* at any time when the weather is open, from September to the beginning of April in the following year; but the earlier it is performed, the stronger they flower. The planting should be done by means of a dibble or trowel, to the depth of about two inches, the ground being previously well dug over, and left some time to settle. They may be set either in beds by themselves in rows, at the distance of eight or nine inches, and six or eight inches apart, or in patches of five or six roots in each, on the front of the clumps, borders, or other parts of gardens and pleasure grounds, putting them in varied positions, both in respect to sorts, and the order in which they are planted.

In the culture of these plants, great injury is frequently done by trimming off the green leaves at the time the flowers decline, in order to prevent litter; as by such means the future blow is rendered more weak and less beautiful. Where new varieties are wanted, recourse must be had to the seed, which must be sown in the spring season, either where the plants are to remain, in a bed of light mellow earth, or in pots filled with the same.





1. *Rhodanthus Manglessii*.  
2. *Sollya heterophylla*.

## N A T. O R D E R .

### *Compositæ.*

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RHODANTHE MANGLESII.

MANGLE'S RHODANTHE

*Class XIX.* SYGENESIA. *Order I.* POLYGAMIA ÆQUALIS.

*Gen. Char.* *Calyx*, five-cleft, stiff and bony. *Pappus*, covered with fine hairs. *Receptacle*, marked with irregular dots.

*Spe. Char.* *Leaves*, oblong, somewhat pointed, obtuse, and cordate. *Branches*, wavy or snake-like, and very slender.

THE *root* is annual ; the *stem* (like the whole plant) is glabrous, rounded, slightly glaucous, branched in a dichotomous manner, with a leaf at the setting on of the branches ; the *branches* are wavy, slender, and forming a sort of a panicle upwards ; the *peduncles* are single-flowered, and more or less drooping ; the *leaves* are oblong-obtuse, cordate, amplexicaul at the base, dark green above, and paler beneath ; *involucre* turbinate, much tapering at the base, formed below of numerous lax, imbricated, purplish-gray, membranaceous, ovate-lanceolate scales, gradually as they proceed upwards, larger and longer, and of a fair rose color, toothed at the apex ; the upper forming a beautiful concave ray around the disk, which consists of numerous yellow, tubular *florets* ; the *receptacle* is naked ; hairs of the *pappus*, feathery.

This is a beautiful hardy annual ; it is considerably cultivated in the south part of Germany, where it bears its brilliant rose-colored and yellow blossoms in the early part of the summer months. "In July," Prof. Lindley observes, "it becomes shabby, and by the beginning of August, its seed is ripe, and its life departed." This plant is said to be a native of Holland

## N A T. O R D E R.

### *Pittosporæ.*

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SOLLYA HETEROPHYLLA.

VARIOUS-LEAVED SOLLYA.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Leaves*, five-parted. *Petals*, five-parted. *Anthers*, connivent. *Pericarp*, bicocular. *Stigma*, obscure.

*Spe. Char.* *Leaves*, oblong. *Petals*, oval, obtuse. *Sepals*, five.

This is a twining *shrub*, usually found growing from three to four feet high; the *leaves* are oblong, glabrous, entire, or rarely sinuato-serrate, and shortly petiolate; *corymbs* terminal, or axillary and opposite the leaves, of several patent, nearly campanulate, bright blue flowers; the *calyx* is small, and of five ovate-acute segments; *petals* oval and obtuse; *stamens* and *filaments* five, short; *anthers* subsagitate, connivent, opening at the extremity, bent for a considerable way down by a long pore or short fissure; *germen* oblong, tapering upwards, and very silky; *style* linear; *stigma* obscurely two-lobed.

This charming plant, which has recently been ascertained by modern botanists to be the *Billardiera fusiformis*, was first discovered growing on Van Dieman's Land; from there specimens were taken, and introduced into Holland and other parts of the adjoining country. It is spoken of by gardeners as being a highly ornamental plant, and is undoubtedly a great acquisition to the flower-garden. In Scotland and the northern parts of England, it is said to thrive and grow well, and blossoms in the months of August and September. It grows in the open air without any protection, and the roots live through the winters of even that cold country.

Some difference of opinion exists in regard to the continuance of *SOLLYA* as a genus, some contending that the fruit is the same as that of *Billardiera*, while Dr. Lindley observes that the seeds are imbedded in a fleshy or pulpy substance, which circumstance, added to the inflorescence being opposite to the leaves, and the short somewhat campanulate corollas, short stamens with the anthers adhering in a cone round the style, and opening by two pores at the points, which would seem to constitute a distinct genus. This plant derived its name in compliment to Richard Horsman Solly, Esq., author of a valuable work on the use of the Microscope, and ardently attached to the study of Vegetable Physiology.

This order contains some beautiful trees and shrubs; some of the shrubs are climbing, which renders them doubly valuable in point of beauty, as their flowers then make a splendid appearance. There are eight varieties spoken of as considered valued in point of cultivation.

*Propagation and Culture.* In Holland and many parts of Germany, all the species are considered worthy of cultivation, and very desirable shrubs for the conservatory. They thrive well in an equal portion of loam and peat. Cuttings, planted in a pot of sand, with a bell-glass placed over them, will root very readily. They may also be raised from seed, which several of the species produce in abundance. One of the varieties, a tree of from twenty to thirty feet in height, is planted as an ornament and shade tree along the roadside; which in the spring and summer makes a beautiful appearance, besides flavoring the air with their sweet-scented perfume.

## N A T. O R D E R.

### *Begoniaceæ.*

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BEGONIA SANGUINEA.

BLOOD-RED BEGONIA.

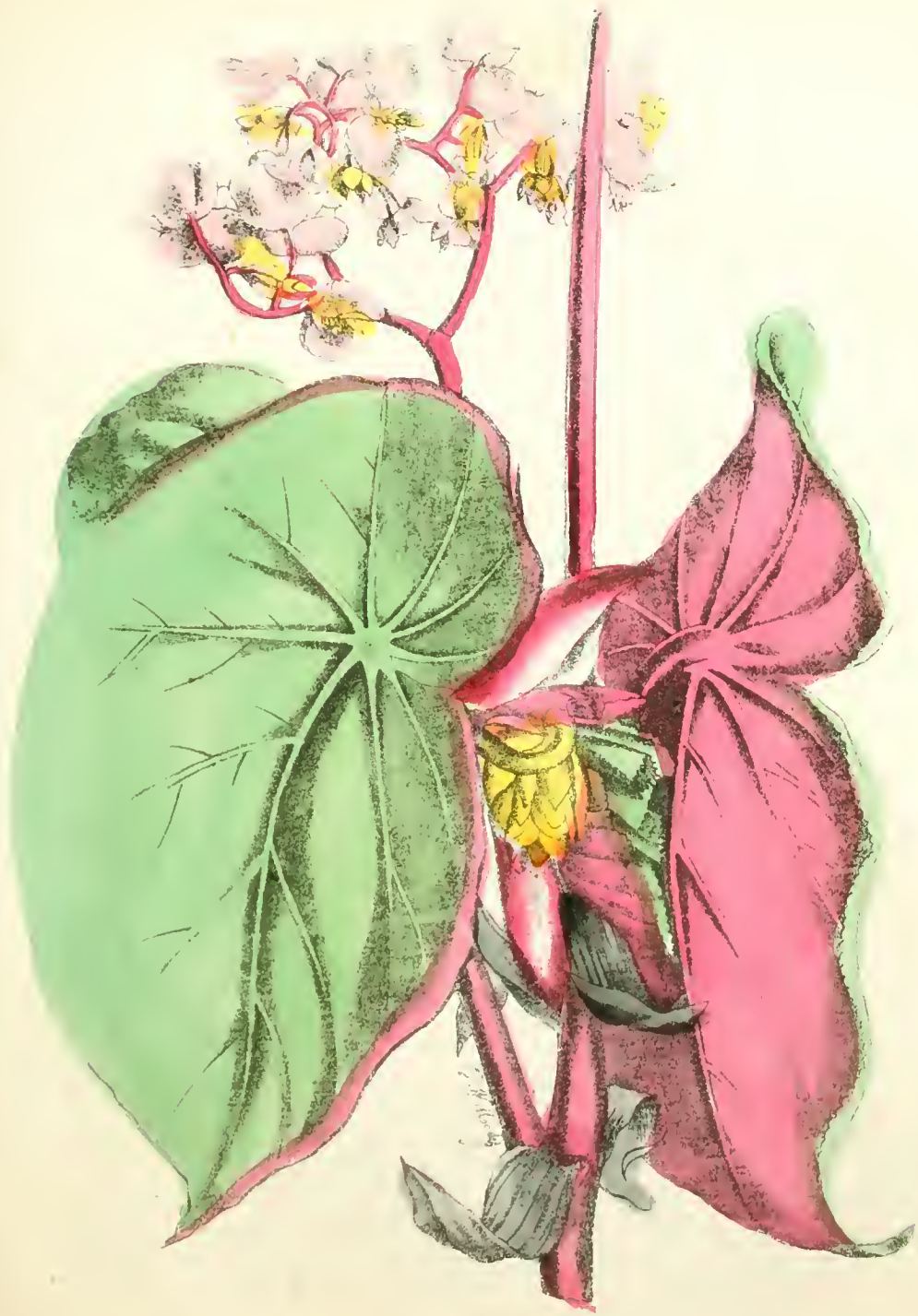
*Class XXI.* MONŒCIA. *Order VII.* POLYANDRIA.

*Gen. Char.* *Calyx*, none. *Corolla*, polypetalous. *Petals*, from four to six, unequal. *Styles*, three.

*Spe. Char.* *Stems*, several in number. *Leaves*, large, sub-peltate. *Petioles*, very unequal. *Stamens*, numerous. *Germens*, winged.

THE *stems* of this plant are several in number, all rising from the crown of the root, subligneous, red, with scattered, oblong, paler spots; the *leaves* are from four to six inches long, two and a half to three and a half inches broad, sub-peltate, unequally cordate, acuminate, the apex soon withering, leathery-succulent, perfectly glabrous and shining on both sides, green above, blood-red below, the edge crenulate and revolute all round; *nerves* about ten, radiating, the larger branched, the smaller subsimple; *petioles* of very unequal length, round, resembling the stem; *stipules* intra-foliaceous, large, ovate, acute, keeled; *peduncle* about ten inches long, terminal, becoming axillary, tapered, similar to the stem, but without spots, repeatedly dichotomous at the apex, the primary branches are about one inch long, the others gradually shorter; *bractæus* lanceolate-elliptical at each division; *flowers* white, rather small; *mule flowers* in the clefts of the cyme, or on the inner side, where the ultimate branches are reduced to two flowers (the outer one being a female), or, occasionally, solitary on the ultimate branches; *petals* four, the two outer subrotund, slightly crenate, the two inner linear, elliptical, very narrow, entire; *stamens* numerous; *filaments* free, excepting at the





*Begonia sanguinea.*



base, where they are monadelphous; *anthers* spathulate; *female flowers* with five subequal petals, expanding later than the males; *stigmas* pale rose colored; *germen* with three subequal wings. In the hot-house it flowers in April.

This plant is more remarkable for the color and texture of its leaves, than for its elegant form. It has been attended with some pains to ascertain the relative position of the male and female flowers when only these two were found at the extremity of the ultimate branch. It seems to me that the normal form is the conversion of the last dichotomous ramification of the cyme into the pedicels of two female flowers, and that the male flowers here, as elsewhere, is placed in the cleft; the loss of the inner female flower being an illustration of the opinion, that internal parts, from pressure, more frequently abort than those which are external. As the common support of these two flowers generally turns half round on its axis, their true position may not be obvious unless examined when they are very young. It is a native of Jamaica, and flowers from May until December.

*Propagation and Culture.* These plants may be raised either by seed, layers, or cuttings. The seeds should be sown in pots of light earth, in the early part of the spring season, and brought forward by being plunged in a moderate bark hot-bed. When the plants have attained sufficient strength, they may be removed into separate pots, and placed in the stove.

In the second method the layers may be laid down in the early part of spring, and be taken off in the autumn, and planted in separate pots. The cuttings may likewise be planted out in the spring months, being transplanted into separate pots after they have become well rooted, and then placed again in the stove. The plants succeed best when kept in the bark stove, or even over the flue of the dry stove, being very ornamental both in their flowers and leaves, which sometimes continue nearly all summer. This plant has never been considered as possessing properties worthy to bring it into use.

N A T. O R D E R.

*Primulaceæ.*

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PRIMULA AMÆNA.

CAUCASIAN PRIMULA.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, many-leaved. *Corolla*, monopetalous. *Tube*, cylindrical, the length of the calyx.

*Spe. Char.* *Stamens*, with five very short filaments. *Anthers*, acuminate. *Style*, filiform, length of the calyx.

THE *leaves* are about three inches and a half long, one and a quarter broad; the *spathe* is oblong, crenate, denticulate, much attenuated towards the base, but scarcely petioled, slightly hirsute and bright green above, densely covered with white wool below, neatly and regularly rugose, middle rib and veins very prominent behind, primary veins nearly at right angles with the middle rib and secondary veins, which are nearly at equal distance apart, reticulated at the edges of the leaf; *scape* and *flowers* about seven inches high, lateral, erect, tomentose-villous; *umbel* many-flowered; *involucre* awl-shaped; *pedicels* erect, unequal, from half an inch to an inch long, pubescent; *calyx* glanduloso-pubescent, pentagonal, ovate-oblong, five-toothed; angles prominent and green; *corolla* very handsome, purplish-lilac in bud or when recently expanded, more blue after a few days; *tube* scarcely longer than the calyx, purple, glabrous and wrinkled; *limb* spreading, nearly flat; *segments* elliptical, emarginate; *anthers* nearly sessile in the throat, and yellow; *pollen* yellow; *germen* globular, glabrous, and lobed; the *style* is about twice the length of the germen; the *stigma* is large and hemispherical.



*Primula amona.*



The varieties of this beautiful plant are numerous, being partly wild and partly produced by cultivation. The principal of which are, the Common Yellow-flowered, the White, the Paper White, the Red, the Double Yellow, the Double White, the Double Red, the Double Pink, and the Double Crimson Primrose. This is a native of most parts of Europe, and the United States. It produces its flowers in March and April with the Wood Anemone.

It is to be observed, that a fine flower of this sort should possess a graceful elegance of form, a richness of coloring, and a perfect symmetry of parts. The properties are mostly similar to those which distinguish the *Auricula*, in what relates to the stem or scape, the peduncles or flower-stalks, and the formation of the umbel, bunch or thyrses, vulgarly termed the *truss*: the tube of the corolla above the calyx should be short, well filled at the mouth with the anthers, and fluted termination rather above the eye: the eye should be round, of a bright clear yellow, and distinct from the ground color: the ground color is most admired when shaded with a light and dark rich crimson, resembling velvet, with a mark or stripe in the centre of each division of the border, bold and distinct from the edging down to the eye, where it should terminate in a fine point: the petals, technically termed the pips, should be large, quite flat, and perfectly circular, excepting the small indentures between each division, which separate into five and sometimes six heart-like segments; and the edging should resemble a bright gold lace, bold, clear, and distinct, and so nearly of the same color of the eye and stripes, as scarcely to be distinguished from it.

In the following we introduce the varieties which are in most general cultivation, their botanical description, &c.

*Primula vulgaris*—Common Primrose. This species has a perennial root, growing obliquely, appearing as if bit off at the end, beset with thick reddish scales, which are the remains of past leaves, sending down numerous very long, round, whitish fibres; it has a singular smell, somewhat like that of anise; the leaves are

obovate-oblong, about five inches in length, nearly upright, tapering to the base, blunt, veiny, wrinkled, smooth above, hirsute beneath, rolled back at the edge when young, slightly waved, unequally notched, the midrib whitish, terminating in a footstalk of a reddish color, channelled on one side and keeled on the other; the scapes or peduncles numerous, the length of the leaves, upright, round, hirsute, pale green, having awl-shaped bractees at the base, after the flowering is over bending back; flowers upright, large, sweet-scented; the corolla is of a pale sulphur color; each of the five clefts are obcordate, and marked at the base with a spot of a much deeper yellow; the mouth has a faint rim round it. The flower of the wild Primrose is of a deep brimstone color; but in some places it is found of a purple hue. The varieties of this species are numerous, being partly wild and partly cultivated.

*Primula elatior*—Great Cowslip or Oxlip. This species has the leaves contracted towards the middle, similar to the Cowslip; the scapes are few, erect, longer than the leaves, many-flowered; flowers umbelled, pedicelled, the outer ones generally nodding; like those of the Primrose in form and color, but smaller. From which it is evidently distinguished by its many-flowered scape; as it is from the Cowslip by the flat border of the corolla. It is found in the woods and other places of this country, flowering in April and May.

Martin, speaking of this plant, remarks, "that if it be a variety, it is rather of the former than the latter; but we are inclined to think that it is a hybrid production, or mule from a Primrose impregnated by a Cowslip. It varies much in the color of the flowers, but the most are purple-flowered, red-flowered, golden-flowered, orange-flowered, with various shades of each.

*Primula officinalis*—Common Cowslip, or Paigle. This has a root like that of the Primrose, but smelling more powerfully of anise; the leaves are obovate-oblong, contracted suddenly towards the middle, or rather ovate with the petiole winged, shorter than those of the Primrose by nearly one-half, fuller at the edge, which is some-



times folded as well as notched, stronger, of a deeper green, not running so tapering at the base, covered on the under side with shorter and softer hairs; the petioles smoother, whitish, with scarcely any red in them; the scapes few, three or four times longer than the leaves, round, upright, pale, villose; the involucre at the base of the umbel, surrounding the peduncles, consisting of many very small, concave, pale, acuminate leaflets; the flowers are in an umbel, unequally-pedicelled, hanging down, generally to one side, full yellow, with an orange-colored blotch at the base of each segment, contracted about the middle of the tube, where the stamens are inserted, paler underneath, very fragrant. It is a native of Europe and the United States.

The fragrant flowers of this plant make a pleasant wine, approaching in flavor to the muscadel wines of the south of France, and is generally supposed to possess a somniferous quality.

*Primula farinosa*—Bird's-eye Primrose. This species has a perennial root, somewhat præmose, with numerous long, perpendicular fibres, and sweet-scented; the leaves obovate-lanceolate, bright green, smooth and even, thickish, here and there turned back on the edges, underneath veined and powdered with white meal; the scape is about six inches in height, far exceeding the leaves, round, upright, stiff, and straight, of a pale green color, and mealy; flowers sweet-scented, of a purple yellow color, in an upright umbel, having at its base a many-leaved involucre, each leaflet of which is awl-shaped, and placed at the base of each peduncle. It is an elegant plant, and a native of the United States and many parts of Europe. It flowers in July and August.

This plant varies greatly in point of size, in regard to its wild or uncultivated state; wild it is found a foot and a half in height, and in the cultivated plant a tendency to become vivaporous, which has been observed by Curtis, or to produce one or more tufts of leaves among the flowers of the umbel. In its wild state seeds readily, and frequently when cultivated; the flowers also

vary with different shades of purple, and have been found entirely white.

*Primula longifolia*—Long-leaved Bird's-eye Primrose. This species bears a great affinity to the last-mentioned, but the leaves differ in form, color, and manner of growth; when fully grown being about twice the length of those of the other; they are not mealy, the under side being as green as the upper, and they have a greater tendency to grow upright; the scape is shorter and thicker; the flowers form a similar umbel, but each is smaller, and in point of color much less brilliant. Upon the whole, though superior in size, it is inferior to that in beauty. It flowers early in May.

*Primula cortusoides*—Cortusa-leaved Bird's-eye Primrose. This species, in the wrinkled appearance of its foliage, approaches the *Primula vulgaris*, whilst in its inflorescence, the color of its flowers, and solitary scape, which rises to an unusual height, it bears an affinity to the *Primula farinosa*. In the winter it loses its leaves entirely, and forms a sort of bulbous hybernacle under ground; this circumstance is necessary to be known, as it subjects the plant to be thrown away as dead. This is a native of Liberia, and flowers in June and July.

*Primula marginata*—Silver-edged Primrose. This, in its farinaceous tendency, accords with the *Primula aricala*, but is far from being like it in its wild state, the leaves being much narrower; the flowers larger, and of a different color; the flowers approaching in color to that of the lilac; it becomes mealy, particularly on the edges of the leaves. This is a delicate pretty plant, with a pleasing musky smell, and flowers in March and April. It is said to be a native of the Alps.

*Primula aricala*—Aricala or Bear's Ear. This plant possesses fleshy leaves, succulent, with the edges mealy, serrated, or entire; the adult ones serrate above the middle; the petioles leafy or winged; leaflets of the involucre unequal, wide, lanceolate or blunt; flowers very sweet smelling, four or five in number, in an upright umbel;

the calyx is one-third of the length of the tube of the corolla, bell-shaped, toothed, mealy, also the scape; the tube of the corolla gradually widening upwards, not contracted at the neck; the border concave; the segments emarginate, but not deeply, being cut only partly to the neck; the most common colors are yellow and red, but it is sometimes found purple variegated, with a white eye powdered with meal; capsule spherical or nearly so, a little flat at the top, and sprinkled with meal. It is a native of the mountains of Switzerland and Austria, and flowers in April and May.

*Propagation and Culture.* These beautiful plants are raised without much difficulty, by proper care and management with respect to the parting of the roots, and the planting them out in their due season; they succeed best in a strong soil, and some of them, as the Primrose kinds, in a shady situation.

*Cultivation in the Polyanthus kinds.* These are all capable of being increased by seed, and the parting of the roots, the former being the only method for obtaining new varieties, or a large supply of plants. The seeds should be collected from such flowers as have large upright stems, and which produce a large number of flowers upon the stalk, being large, beautifully striped, open, flat, and not pin-eyed, as from such seed a great variety of desirable sorts may be expected; care should be taken, however, that no bad or common flowers stand near them, as they will be apt to debase them, by the admixture of their farina.

The seeds should be sown in boxes or large pots filled with light rich mould. The proper season for this business is in the autumn or the early part of spring; but the former is the better, as by sowing then the plants come up well the same year, and are strong and fit to plant out the following spring, and are also fine plants for flowering the second season. In the first season the sowing should be performed as soon as possible after the seed becomes well ripened, though some advise December as a good time; but when in the later, or the spring season, it may be done in February,

March, or April. The seed should be sown over the surface quite thick, and covered in very lightly, and the boxes or pots placed where they may have a little of the morning sun, but avoid the mid-day heats. The plants may be much forwarded by plunging the pots or boxes into a mild hot-bed; in the spring, when dry, they should be frequently refreshed with water, in very moderate proportions at a time, removing the plants more into the shade as the heat advances, as it soon destroys them.

It is necessary, in order to keep up a good stock of plants, to raise new seedling plants every two or three years, as the old plants mostly decline in beauty after the third year. In the latter method, the roots should be parted in the beginning of the autumn, as soon as the flowering is over, and it may likewise be done early in the spring; but the former is the best time, as the plants get stronger and flower better in the spring.

In performing the work the plants should be taken up out of the ground, and each branch divided into several slips, not too small, unless where a great increase is wanted, being careful to preserve some root to each slip; they are then to be planted in a fresh dug border, enriched with dung as above, setting them five or six inches asunder, giving them water directly, and repeating it occasionally, till they have taken good root. All the approved sorts may in this way be easily preserved.

These plants, it has been observed, are very liable to the depredations of snails and slugs, in the spring of the year; the plants and pots therefore should be carefully examined on all sides early in the morning. But their worst enemy is a small red spider, or *Acarus*, which in summer forms its web on the under side of the leaves.—These little insects are scarcely visible without a magnifying glass: they cause the leaves to become yellow and spotted, and eventually destroy the plant; they multiply with such rapidity as to take possession of a whole collection in a very short time. Such plants as appear infected should therefore be selected from the rest, taken up,

and soaked for two or three hours in a strong infusion of tobacco water, and then replanted in a fresh soil or compost, and removed to a situation at a distance from the former. But if the whole bed or border be overrun with this insect, it is best to take up all the plants, and having soaked them, to plant them elsewhere. The bed or border should then be trenched up, and remain fallow to the next season, or be planted with another crop not liable to this calamity.

In their after management, they are said to blow at the same time, and require nearly the same treatment, as *Auriculas*, both with respect to soil and situation; they are, however, more impatient of heat and drought, and more partial to shade and moisture. They may be set in the same sized pots, and in the same compost as the *Auricula*, only with the addition of more loam: or they may be planted on cool shady beds or borders, being very hardy, and seldom destroyed by the coldest and most severe season, because their parent is a native of this country; but during the heats of summer they are frequently destroyed, unless proper precautions are taken. This dislike of heat seems to indicate, that *Polyanthus* is rather an offspring of the Primrose, which requires shade, than of the Cowslip, which grows in open pastures; though some seem to regard it as a variety of the latter.

The roots of the wild plants, when they can be procured, may be taken up, divided, and planted out in the autumn, when they will flower in the following spring. The *Auricula* kinds may all be increased by seeds; but in order to procure new varieties, choice should be made of the best flowers, which should be exposed to the open air, that they may have the benefit of the showers, with which they seldom produce good seeds. These ripen in June.

## N A T. O R D E R.

### *Lomentaceæ.*

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CASSIA MARILANDICA.

AMERICAN SENNA

*Class X.* DECANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, five-cleft, deciduous. *Corolla Petals*, five, lower ones larger. *Stamens*, ten, separate, the three upper anthers barren, the rest fertile; three lower ones arcuate. *Legume*, membranous, many-celled. *Seeds*, albuminous. *Embryo*, straight.

*Spe. Char.* *Legume*, long, cylindrical, woody, not opening by valves, many-celled, cells filled with pulp.

THE wild *Senna* is a beautiful plant; it grows to the height of three or four feet; the *stems* are upright, and rise directly from the root; the *root* is perennial, mostly horizontal, but sometimes perpendicular, contorted, irregularly shaped, woody, black, and covered with a multitude of fibres also of a deep black color externally, and yellow within; the *stems* are also many, often simple, herbaceous, cylindrical, either entirely smooth, or furnished with a few hairs; the *leaves* are alternate, rather long, green above, and pale underneath; *leaflets* in eight pairs, ovate-oblong, equal, and yellow on the margin, a gland at the base of the petioles; the *flowers* are of a bright orange-yellow, in short axillary racemes, on the upper part of the stem; *legumes* three or four inches long, a little curved, mucronate, bordered, with conspicuous joints, and a few scattered reddish hairs.

This plant is pretty common from New-York to Carolina; and where met with, is generally very abundant. Though it sometimes is found remote from water, it will always (upon the authority of



*Cassia Marilandica.*





Barton) appear on examination, that such situations are exsiccated swamps or meadows. It delights in a low, moist, gravelly, or sandy soil, preferring the borders of rivers, creeks, and such watery places, to any other situations; and flowers from the last of June to the first of August. It was said to be introduced into England in the year 1723, by Peter Collinson, Esq., where it flowered from August till October.

The generic name of this plant is of Asiatic origin, and was first brought into Greece along with the commercial article which it denoted, by the Phœnician merchants. The specific appellation was given by Linnæus, in conformity with the common custom, of which later discoveries have shown the impropriety; that of naming a new species of any genus, from the particular place whence it was sent to him. Though the first specimens of *Cassia Marylandica* were transmitted to Linnæus from the state of Maryland, the plant is now known to be extremely common in almost every state in the Union, south and west of New York. Inappropriate as the specific name is, however, it still does, and always ought to, stand unchanged.

The naturalist has often reason to lament that travelers and merchants have given the name of one thing long known to another recently discovered, on account of a real or fancied resemblance in a single particular, though in every other respect it has been entirely different. Such has been the fate of Cassia. In the middle ages, the Arabian and Greek physicians, as appears from the writings of Avicenna and Myrepsus, acknowledged two kinds of Cassia; one, *Cassia aromatica*, a native of India, the Cassia of the ancients:—the other, *Cassia solutiva*, a native of Egypt, totally different in its general appearance, botanical characters, and medical qualities; and which appears to have been honored with the same name as that which from time immemorial had distinguished the precious oriental spice, merely on account of its pleasant smell; for we are informed by Alpinus, that when he was in Egypt, in the latter part of the sixteenth century, the natives took great delight in walking early in the morning in the spring season

near plantations of this kind of Cassia, and regaling themselves with the fragrance of its flowers. To this species, and its numerous congeners, the term Cassia, as a generic appellation, is confined by modern botanists.

It appears by the researches of Mon. Hippolite Nectoux, that botanists and writers on the *Materia Medica*, have hitherto been mistaken in supposing the true Senna of the shops to be the leaves and fallicles of the *Cassia Senna* of Linnæus. This intelligent and industrious inquirer instituted, in Egypt, a series of investigations respecting the Senna, which resulted in the singular fact, that Cassia Senna of Linnæus, which had always been considered as the true Senna, is in reality a weed, with which the real Senna is adulterated in Egypt, to augment the quantity produced by the annual growth of the other two plants which constitute the Senna.

*Medical Properties and Uses.* "Wild Senna," says Barton, "is now known to be a valuable cathartic of the milder class. It is but a little, if at all inferior to the Alexandria Senna, and is doubtless one of the most important of our indigenous medicines. Professor Hewson, of Philadelphia, informed me that he had used it occasionally, and with the same good effect as common Senna; and I have had some experience with it in my own practice. At the Marine Hospital of the Navy-Yard, I have for some mouths past substituted it for Alexandria Senna, and frequently employed it. I have also, in a single instance, used it in my own family. In all these trials I have had reason to confirm the high character of the plant, which it has long maintained. The leaves alone, have in general been used; but I have made use of the dried leaves follices, carefully rejecting the leaf-stalks, and beg leave to recommend this manner of employing the plant for medical purposes. I believe the best time for collecting it would be when the pods are ripe, which is about the last of August.

The affinity of Wild Senna to two of the articles which constitute the Senna of Commerce, renders it probable that these foreign plants might be cultivated without difficulty, and with great profit, in our

Southern States. I have understood that the Alexandria Senna has been cultivated in North Carolina with success.

Since it appears that we do not obtain pure Senna from Egypt, and that the adulterating plant, or *Cassia Senna* is much inferior to our native species, it cannot be doubted that the cultivation of the *Cassia Lanceolata* and the *Cynanchum Olfæolium*, and mixing them with the *Cassia Marilandica*, would afford a much purer Senna than we now use, and at one-fourth the cost of the imported article. These facts and hints are certainly not unworthy the attention of our southern planters and physicians.

The *Senna italica*, or blunt-leaved Senna, is a variety of the Alexandria species, which by its cultivation in the south of France, has been found to assume this change: it is far less purgative than the pointed-leaved Senna, and consequently should be given in much larger doses. It is employed by the inhabitants of Jamaica, where it grows in great abundance near, and on the sea coast.

This plant is hardly ever employed as a cathartic, except in the form of an infusion. In order to divest it of its griping quality, which it possesses to a considerable degree, it is commonly mixed with other substances, such as manna, coriander, fennel, or anise seeds. It is to be observed, also, that the powdered Senna is very apt to undergo alteration or decomposition, from being suffered to remain exposed to a humid atmosphere. In such a situation it becomes covered with a kind of pellicle, or mouldiness, which contains a small portion of pot-ass. The powder, however, is very seldom employed, except with other cathartics. The infusion is disturbed by strong acids, lime water, nitrate of silver, oxymuriate of mercury, acetate of lead, tartarized antimony, and by the infusion of yellow cinchona.

## NAT: ORDER.

### *Portulacæ.*

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CALANDRINIA DISCOLOR. TRI-COLORED CALANDRINIA.

*Class XIII.* POLYANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, permanent, bipartite. *Sepals*, roundish, ovate. *Petals*, three to five, inserted into the bottom of the calyx. *Stamens*, four to fifteen. *Style*, one, very short. *Lobes*, collected.

*Spe. Char.* *Leaves*, quite entire, radical or alternate. *Pedicels*, one flowered, axillary or opposite the leaves.

The *stem* of this plant is suffruticose, succulent, much branched, flexuose, and marked with the scars arising from the falling of the old leaves; the *leaves* are mostly confined to extremity, or near the extremity of the branches; they are lanceolate-spathulate, acute, frequently re-curved, succulent, of a glaucous green on the upper surface, and a purplish red beneath; the *racemes* which are terminal from the apex of the branches, are long; the *pedicels* compound and deflexed before and after flowering; the *flowers* are large and about twice the size of those of *Calandrinia grandiflora*; the *calyx* consists of two concave, ovate, green leaves, spotted with black; the *petals* are very large, obcordate, and of a bright rose color; the *stamens* are from twenty to thirty in number; the *filaments* are red and slightly downy; the *anthers* red and brown; the *pollen* orange color; the *germen* broadly ovate, and green; the *style* is thickened, especially upwards; the *stigma* consists of three flattened lobes, which are yellow.

Among the many novel and beautiful plants which adorn the British gardens, is the *Calandrinia discolor*. Many others of its species.



*Calumbria discolor.*



are also highly beautiful and ornamental ; yet no one can vie in elegance and beauty the one under consideration. English botanists speak of this as a rare curiosity, and only introduced into the European gardens in the year 1827 ; many of its species are also enumerated, but none of them worthy of particular notice at this time, as they will hereafter be most accurately described.

This plant is a native of North America and Canada, and is found in greater abundance in the Northern States than any other part of the globe ; some of its species are, however, natives of Chili, where they are considered as one of the chief ornaments of the garden ; they being planted out in the borders, and in small selected patches appropriated for the purpose. In this country I do not recollect of seeing or even hearing of any of the species under a state of cultivation, though I think it would be well for some of our gardeners to try the experiment.

*Medical Properties and Uses.* From an extensive collection of books both ancient and modern, treating upon botany and materia medica, I can find no author who has ever described the medicinal properties of this plant ; under these circumstances I can only relate such facts as have been communicated to me by letter from physicians of high respectability ; the general opinion of these gentlemen is, that the plant in question possesses diuretic, diaphoretic, and emmenagogue properties ; it is recommended in gravel, kidney complaints, obstructed menstruation, &c. The leaves and roots possessing the same virtues. For use, it is recommended to add one ounce of the dried leaves to one quart of water, steep for a while, and drink from one to three wine-glasses full per day. An extract is made by using the whole plant, in which case it can be given in the form of pills ; one five grain pill for a dose, two or three times a day.

## NAT. ORDER.

*Dumosæ.*

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PRINOS VERTICILLATUS.

WINTER BERRY.

*Class VI. HEXANDRIA. Order I. MONOGYNIA.*

*Gen. Char.* *Calyx*, Perianth inferior, of one leaf, six-cleft half way down, flat very small, permanent. *Corolla*, of one petal, wheel-shaped. *Tube*, none. *Limb*, flat, deeply cloven into six orate segments. *Stamen*, filaments, six awl-shaped, erect, shorter than the *Corolla*. *Anthers*, oblong, obtuse. *Germen*, superior, orate, terminating in a style shorter than the *Stamens*. *Stigma*, obtuse. *Berry*, roundish, six-celled, much larger than the *Calyx*. *Seeds*, solitary, bony, obtuse, convex on one side, angular on the other.

*Spe. Char.* *Calyx*, inferior, six cleft. *Corolla*, wheel-shaped, and from three to seven cleft.

“THE *stem* is shrubby, and branched all the way up; the *branches* are alternate, horizontal, spreading, and of a bluish grey or ash-color; the extremities, or new shoots, being greenish; the *leaves* are oval, tapering at their base, ending in a point, and sawed on their edges; they are of a dark, or somewhat olive-green color, and smooth above, but downy on the nerves and veins beneath, alternately; they are alternately arranged along the branches, and are supported by short foot-stalks; the *flowers* are often dioicous, small and white, and grow together in axillary and lateral groups of from three to four in number, rarely solitary; the *corolla* is monopetalous, rotate, six and sometimes seven cleft; the *stamens* are generally six in number; the *berries* are globular, and vary a little in size, as represented in the plate, but are generally of the magnitude of a marrowfat pea. As winter advances, they become of a more purplish color. That the





*Pinus verticillatus.*



plant may be easily identified when sought after for medical purposes, I have represented it both in flower and fruit; but while in the latter condition, it should be chosen for medical use."

This is "one of the most beautiful ornaments of the swamps of our country, in the autumn and winter,—the Winter-berry. The elegant color of the berries, aggregated in numbers of two or three on the small branches of the shrub, together with their multitude, afford a pleasing contrast to the fading vegetation. The generic name *Prinos*, is of very ancient origin, having been used by Theophrastus and Dioscorides; and it is supposed to be derived from a Greek verb, signifying or meaning to saw, and to have been applied to this genus by Linnæus, on account of the strong serratures of the leaves in some of the species."

*Prinos verticillatus*, is a shrub of from eight to ten feet in height, found growing in and near swamps, on the borders of rivulets and ditches, and in damp woods with moist bottom, every where from Canada to Georgia. It flowers in the month of June, and at this time it has a very ordinary appearance; but when its berries are fully ripe, which is in the last of October and beginning of November, it is strikingly beautiful. At these periods the leaves remain on, but even after they have fallen, the appearance of the shrub from its multitude of rich crimson, and sometimes scarlet berries, is exceedingly handsome.

*Prinos glabra*, Ever-green, Winter-berry. This species is closely allied to the former, and its foliage remaining of a beautiful green all through the winter. Its leaves are alternate, petioled, oblong of a firm texture, smooth, acute; there are commonly two serratures towards the tip; the peduncles axillary small, and generally three-flowered.—It is of lower growth than the preceding; the leaves are shorter and serrate at their points only. It is a native of Canada, flowering in July and August.

*Propagation and Culture.* In these plants it is effected by seeds, sown soon after they are ripe, or early in the spring, upon a bed of light earth, covering them about half an inch with the same sort of

earth; but the seeds which are put into the ground in the autumn will many of them come up the following spring, while those which are kept longer out of the ground, often remain a whole year before the plants appear, as in Holly, Hawthorn and some others. The seeds may be forwarded in their growth by means of a hot-bed. When the plants have sufficient strength they should be planted out, some in nursery-rows and others in pots. They delight in a moist soil and a shady situation. In hot land they make progress, and rarely produce any fruit. They are very ornamental, and afford variety in the pleasure-grounds and among potted plants.

*Medical Properties and Uses.* “*Prinos verticillatus*, is perhaps, as well known among country physicians (called black alder) as any indigenous medicinal plant of the United States. It is universally and justly celebrated. Shoeff first publicly noticed its virtues. He says it is an antiseptic, and is used in gangrene and jaundice. This is all he has on the subject; and the verity of his observation is proved by the fact, that at this time it is successfully employed by country practitioners and others, as an antiseptic in cases of foul ulcers and mortification. The bark is astringent, bitter, pungent and not very disagreeable. The first of these virtues has probably led to its use in diarrhoea, which disease it is highly recommended in curing. It has been, and continues to be much used, and efficaciously, instead of Peruvian bark, in intermittent fevers and other complaints. In cases of great debility, unattended by fever, it has been highly extolled; and both its sensible properties, and well-known effects, render it probable that its reputation in such cases is merited. It has also been used and praised, as a corroborant in anasaca and general dropsy; and as an antiseptic and tonic in cases of incipient gangrene. In these cases it is given internally, and employed at the same time externally as a wash. The berries participate in all the virtues already enumerated, as appertaining to the bark; and brandy infusions or tinctures made of them, are of general use in the country, in all cases where bitter tinctures are indicated. Country practitioners combine the bark with the root of sassa-

fras, and the bark of white oak, and other things, and make a decoction of the mixture, which is much recommended by them as a wash in foul ulcers and gangrene.

Upon the whole, the *Prinos verticillatus* may be confidently recommended to the notice of physicians as a plant possessing in an eminent degree, the properties of vegetable astringent and tonic medicines. And if, added to these, we take into view the antiseptic powers it is reputed to possess, it will be found deserving of no ordinary commendation. Of the last mentioned property indeed from experience I know nothing; but having used both bark and berries on several occasions, it is with no little satisfaction that I bear testimony to its deserved claim to those commendations which have been bestowed on it for the other virtues.

The bark may be used in substance or in decoction. To the latter it readily yields its virtue; as it also does to vinous or spiritous menstruums. From one drachm to three of the powdered bark may be administered in the course of twenty-four hours. An ounce of the bark, added to a pint and a half of water and boiled down to a pint will make a useful decoction, which may be taken in the dose of a gill every two hours. A saturated tincture is a convenient and useful way of extracting the virtues of the plant; and this tincture may be made by mixing the bark and berries together and letting them digest for a few days.

It may be proper to caution those who gather the *Prinos* or Black Alder for medical use against mistaking for it the Candle Alder, or Swamp Alder, which names are applied to a species of a very different genus, the *Betula serratula*. The name Black Alder may lead to further mistake, since it is appropriated also to another species of *Prinos*, the *Prinos ambiguus*, and to the *Ilex deliculata* of Barton. It is not improbable, however, that other species of the *Prinos*, besides those under notice, will be found possessed of similar medical virtues. This is certainly important to enquire into.

## NAT. ORDER.

*Bicornes.*

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KALMIA GLAUCA.

GLAUCOUS KALMIA.

*Class X.* DECANDRIA. *Order I.* MONOGYNIA

*Gen. Char.* *Calyx*, five parted. *Corolla*, salver-shaped. *Capsule*, five-celled, many-seeded. *Flowers*, disposed in terminal, racemose, compound corymbs. *Pedicels*, long, one-flowered, tribroccate at the base. *Buds*, naked. *Anthers*, opening by two oblique, truncate pores.

*Spe. Char.* *Branchlets*, two-edged or triquetrous. *Leaves*, opposite. *Pedicels* and *Calyxes*, glabrous.

THE *Calyx* is a five-parted perianthium, small, and permanent; the *segments* are subovate, acute, and rather columnar; the *corolla* is one-petalled, and salver-funnel-form; the *tube* cylindric, and longer than the calyx; the *border* is adorned with a flat dirk, the margin upright, and half-five-cleft; there are ten nectariferous hornlets projecting outwardly from the corolla, and surrounding it where the border of it is upright; the *stamens* have ten awl-shaped filaments, upright-spreading, rather shorter than the corolla, and inserted into the base of the corolla; the *anthers* are simple; the *pistill* is a roundish germ; the *style* is thread-form, longer than the corolla, and bent down; the *stigma* obtuse; the *pericarp* is a capsule, subglobose, depressed, five-celled, five-valved, and five-partite; the *seeds* are numerous.

This *plant* rises with a branching stalk to the height of ten or twelve feet, with very stiff leaves, which are about two inches long and one broad; they are of a lucid green on their upper surface, and of a pale green on their under; they have short foot-stalks, and stand without any kind of order round the branches; between these the



1. *Volana prostrata*.  
2. *Halmia glauca*.





buds are formed for the next years' flowers, at the extremity of the branches; these buds swell during the autumn and spring months, till the beginning of June, when the flowers burst forth from their empalements, forming a round bunch, or corymbus, sitting very close to the branch; they are of a pale blush color, but the out side of the petal a peach color. In its native soil it continues flowering the greatest part of the summer, and is highly ornamental.

*Kalmia* (named by Linnæus in honor of Peter Kalm, professor at Abo, in Sweden; author of Travels in America, in the year 1753.) It is a native of all the northern parts of the United States and Canada, inhabiting boggy meadows, and the borders of mountains and lakes, and damp, stony, rough places.

*Propagation and Culture.* These plants are increased by seeds, layers and suckers. The present one, however, is mostly raised from seeds, which should be sown in pots or boxes of light sandy mould, in the spring, placing them in an easterly border, or in beds of light mould, in a similar situation. When placed on a gentle hot-bed they succeed better. They must, however, be inured to the full air in summer, being sheltered during winter from frost. When the plants have had two years' growth, they must be removed into separate pots, to be continued two or more years, when they may be planted out in the open ground in warm situations.

*Medical Properties and Uses.* The poisonous qualities of this elegant shrub have very much lessened its value, both as an ornament and a medicine. Cattle, horses, sheep, and other domestic animals, have been poisoned by eating freely of the green foliage of this plant. As a medicine it is not recommended for use. It is said to possess similar properties to those of the night-shade tribe. A strong infusion, or a decoction from the leaves, or bark of the root, will materially alter the pulse, even given in the most minute doses; it also appears to possess considerable narcotic powers, producing insensibility, languor, stupor and delirium. These effects have been produced by accidental use.

## NAT. ORDER.

*Solanacee.*

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NOLANA PROSTRATA.

TRAILING NOLANA.

*Class V.* PENTANDRIA.      *Order I.* MONOGYNIA.

*Gen. Char.* *Corolla*, plicate in æstivation, five lobed. *Stamens*, five adnate to the tube of the *Corolla*. *Ovaria*, one to five, or more crowded, seated on a fleshy annular disk. *Stigma*, carpitate. *Drupe*, solitary, or five together.

*Spe. Char.* *Stems*, prostrate. *Leaves*, ovate-oblong. *Calyx*, pyramidal, with triangularly sagitate segments, furnished with spur-like processes at the base.

THE *calyx* is a one-leaved perianthium, turbinate at the base, five-parted, five-cornered; the *segments* cordate, acute, and permanent; the *corolla* is one petalled, bell-shaped, plaited, spreading, and somewhat five-lobed, and twice as large as the calyx; the *stamens* have five awl-shaped filaments, which are erect, equal, and shorter than the corolla; the *anthers* sagitate; the *pistillum* is similar to five roundish germs; the *style* is among the germs, cylindric, straight, and about the length of the stamens; *stigma*, capitate; the *pericarp*, properly none; the *drupe*s are five in number, decumbent, and three or five-celled; the seeds are five, with a succulent rind, roundish, with the inner base naked, immersed in the receptacle, two-celled and four-celled, and solitary; the *root* is annual, simple, filiform, about three feet long, and blackish; the *stem* is from a foot to a foot and a half long, herbaceous, prostrate, roundish, very smooth, and spotted with white dots over its surface; the *branches* are alternate, the lower ones about the length of the stalk; the *leaves* are alternate, two together, reflex rombovate, quite entire, blunt, somewhat fleshy, an inch long, somewhat papulose,

even, flat, veined, unequal, and alternately larger and smaller. According to the account given by Miller, they came out single at some joints, by pairs at others, and frequently three or four at the upper joints; the *petioles*, ancipital, scarcely shorter than the leaves, smooth, those belonging to the upper leaves, vaguely ciliate; the *peduncles*, lateral, solitary, spreading a little, an inch long, one-flowered, round, thicker at the top, and hairy; *flowers* are inferior.

This plant derived its name from *nola*, a little bell, on account of the bell-shaped form of the corolla. It is a native of Java.

*Propagation and Culture.* These plants may be raised by sowing the seeds on a hot-bed in March, or the beginning of April. After they have grown of sufficient size to move, they should be planted out singly into small pots filled with light earth, and placed in a fresh hot-bed for the purpose of bringing them forward. When their flowers open in summer, which is mostly in July, they should have a large share of air admitted, especially when the weather is warm, to prevent their falling away without producing seeds. Under this management the plants often continue flowering until the early frosts destroy them, and ripe seeds are produced in the beginning of the autumn.

*Medical Properties and Uses.* At first sight, this family would seem to offer a strong exception to the general uniformity of structure and property, containing as it does (in the natural order) the Nightshade and Henbane, and the wholesome Potato and Tomato; but a little inquiry will explain this apparent anomaly. The tubes of the Potato are well known to be perfectly wholesome when cooked, that acrid and narcotic property which they possess being wholly dissipated by heat. This is the case with other underground succulent stems in equally dangerous families. The leaves and roots possess both poisonous properties, and are but little used in medicine. In the time of Salmoud they were recommended for costiveness, but great caution was necessary lest they took too much.

## NAT. ORDER.

### *Nymphiaceæ.*

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NELUMBIUM SPECIOSUM.

CHINESE WATER LILY.

*Class* POLYANDRIA. *Order* POLYGYNIA.

*Gen. Char.* *Calyx*, four, five, and six leaved, large and colored.

*Corolla*, numerous petals, often fifteen. *Stamens*, often seventy.

*Pistillum*, ovate.

*Spe. Char.* *Style*, none. *Stigma*, orbiculate, flat, peltate, sessile,

ragged, crenate, permanent. *Pericarpium*, a hard berry, fleshy,

rude, narrowed at the neck. *Cells*, from ten to fifteen.

TRUNK of the *root* horizontal, fleshy, white, sending out many fibres from the under surface; *petioles* long, rising beyond the surface of the water, scabrous with acute tubercles; *leaves* large, one or two feet in diameter, exactly peltate in the centre, orbicular entire, glabrous, under surface palest, margins somewhat waved; *peduncles*, longer than the petioles, erect, and scabrous; *flowers* large, emulating *Pæonia* and *Papaver*, white and red; *fruit* resembling an instrument once used in play by the French, by the very antique name *Lotos*, (D. C.) It was known in early history, and was said to be a native of India, but is found in great abundance in all parts of China.

This plant was well known to the Greeks, and is said by Herodotus, Theophrastus, and others, to be a native of Egypt, but no modern traveler has observed it growing in that country. There can, however, be no doubt of its having actually existed there, either naturally or cultivated, since the terms in which it is described by those authors are too clear and decisive to be mistaken, and their accounts are confirmed by ancient Egyptian sculptures and mosaics, which are still preserved, and testify that from the earliest times, it as well as the



*Nelumbium speciosum*



proper *Lotos*, has obtained a religious reverence. It is remarkable that neither Herodotus nor Theophrastus, the most ancient writers by which it is described, have attributed any sacred character to it, but speak of it as only used as food by the Egyptians. Both root and seeds are esculent, sapid and wholesome. They are accounted cooling and strengthening, and to be of service in extreme thirst, diarrhœa, tenesmus, vomiting and too great internal heat. In China it is called *Licncha*, and the seeds and slices of the hairy root, with the kernels of apricots and walnuts, and alternate layers of ice were frequently presented to the British Ambassador and his suite at breakfasts given by some of the principal Mandarins. The roots are laid up by the Chinese in salt and vinegar for winter use. Sir George Staunton remarks that the leaf, besides its common uses, has from its structure, growing entirely round the stalk, the advantage of defending the flower and fruit arising from its centre from contact with the water, which might injure them. He also remarks that the stem never fails to ascend in the water, let the depth be ever so great, unless in a case of sudden inundation, until it attains the surface, when its leaf expands, rests upon it and often rises above it. Many varieties of this plant are distinguished by the Chinese; one of them with pure-white flowers, and another having about an hundred petals white or rose-colored. From the root of the *Nelumbo*, Sir George Staunton says, the Egyptians are supposed to have prepared their *Colocasia*, but as the plant is no longer to be found wild in that country, from which circumstance some naturalists infer that it never was indigenous there, but cultivated by the inhabitants with extreme care. The ancient Romans made repeated efforts to raise it from seeds brought out of Egypt. Dr. Patrick Browne is of the opinion that the ancients confounded two plants under the name of *Lotos* or *Egyptian-bean*, and that under these titles they described the upper parts of the *Nelumbium* and the roots of *Caladium Colocasia*, now commonly called *Coccos*, in Jamaica. Thunberg says that it is considered as a sacred plant in Japan, and pleasing to their deities, and that the images of their idols were often

drawn sitting on its large leaves. Loureiro relates that it abounds in muddy marshes in India and China, and is cultivated in large, handsome pots in the gardens and houses of the Mandarins. The Chinese have always held this plant in such high value, that at length they regarded it as sacred. The seeds are somewhat of the size and form of an acorn, and of a taste more delicate than that of almonds. The ponds in India and China are literally covered with the plant, and exhibit a very showy appearance when it is in flower, and the flowers are no less fragrant than handsome. It is the *Pythagorean bean* of the ancients, and has been regarded from the most remote periods as an emblem of fertility.

*Propagation and Culture.* The species of this beautiful aquatic genus should be grown in cisterns, tubs, or large pots, in a rich, loamy soil; they require a strong heat in order to make them flower in perfection. The cistern, pot, or tub should be kept full of water all the time the plants are growing, but may be allowed to dry when the flowering season is over. The plants may be increased by dividing the roots, but are obtained more readily from seeds, which vegetate freely. None but the present species have ever flowered in this country. They all require to be kept in a very warm situation in a stove.

Professor Lindley, speaking of this plant, says, "that it is a native of the temperate and tropical regions, of the northern hemisphere, both in the Old and New World; but is found in the greatest abundance in the East Indies, and that they were formerly very common in the southern part of Egypt, but are now extinct in that country according to the account given by Delile." All writers who have mentioned this plant, speak of it being extensively used as an article of food in China, and considered as a luxury even by the nobility.







1. *Antennaria acutis.*

2. *Corocopsis diversifolia*

## N A T. O R D E R.

### *Compositæ.*

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COREOPSIS DIVERSIFOLIA. TICK-SEEDED SUN-FLOWER.

*Class XIX.* SYNGENESIA. *Order III.* FRUSTRANIA.

*Gen. Char.* *Calyx*, eight leaved, coarse and placed in a circle. *Corolla*, compound, rayed. *Females*, eight in the ray. *Stamens*, five.

*Spe. Char.* *Germ*, compressed. *Style*, filiform, length of the stamens. *Stigma*, bifid, acute, slender. *Receptacle*, chaffy.

THE *root* of this *plant* is annual; the *stem*, a foot, or a foot and a half high, branched, varying exceedingly in hairiness, sometimes thickly clothed with rather long, spreading hairs, at other times quite glabrous; *leaves* generally glabrous, petiolated, extremely variable, sometimes obovate-spathulate, and quite undivided, sometimes ternate, with the two lateral segments or leaflets smaller, at other times pinnatifid, and not rarely even bipinnate; the *leaflets* obovate or oval, and very obtuse, those of the lower-most leaves almost orbicular; *peduncles* double, small, terminal and axillary, also long, slender, and glabrous; *involucre* double, monophyllous and about eight partite; the outer lax with linear, green segments; the inner with broadly-elliptic, brown, glossy, membranaceous ones; *florets* of the *ray* eight, very large, obovate, spreading, bright orange, with a dark brown spot at the very base, unequal teeth, the two middle ones the largest; *germen* ovate, compressed, slightly curved; *receptacle* chaffy; the *scales* long, lanceolate-subulate, dark purple brown, and pale below.

This elegant plant is a native of the United States; it is cultivated by many gardeners as an ornament, but is mostly found growing in a wild or uncultivated state. It seeks mostly old gardens, hedges

and waste places. It abounds abundantly in various parts of Texas, from whence it was sent in the year 1835 to England, by the late Mr. Drummond, who was favorably struck with its beauty. The seeds which were planted in March, produced plants which displayed their large and bright orange-colored flower with a dark eye in the open air, in the following July. It is a hardy and most desirable annual. Its nearest affinity, as a species, is undoubtedly with the *Coreopsis auriculata*, with which some botanists appear, though doubtfully, to have united it. It differs from that plant in its being of much smaller size, thinner, and usually more divided leaves, with broader and blunter segments in its much larger flowers, and above all, the truly annual duration of the root. There are several varieties cultivated.

*Coreopsis verticillata*. Whole-leaved *Coreopsis*. This has a perennial root, with many tall, stiff, angular stems, upward of three feet high; the leaves are opposite, often in whorles; leaflets very narrow and entire; the branches opposite; the peduncles long, slender, and one-flowered; the ray yellow; and the disk dark purple. It continues long in flower in the latter end of the summer. This is a native of North America.

*Coreopsis tripteris*. Three-leaved *Coreopsis*. This species has likewise a perennial root; the stems, strong, round, smooth, and six or seven feet high; the flowers appear in bunches at the top of the stem, on long peduncles; the ray of the corolla, is of a pale yellow; the disk a dark purple. Native of the United States.

*Coreopsis alternifolia*. Alternate-leaved *Coreopsis*. This has a woody perennial root; the stems, several in number, annual, erect, angular, filled with white pith, winged, from five to ten feet high, simple, having only very short subdivisions at the top into roundish villose peduncles; the leaves are ragged on both sides, of a dirty green color; the lower ones three or four together, or two opposite, the rest alternate, decurrent; the flowers are large and of a yellowish color, coming out late. This is a native of Virginia.

*Coreopsis lanceolata*. Spear-leaved Coreopsis.—This species has several stems, decumbent at the bottom, and thence arising obliquely from a foot and a half to two feet in length; at each joint a pair of oblong leaves appear, with other smaller ones; the peduncles are round and smooth; the florets in the ray eight or nine, broad, with four deep, large teeth at the end. It is a native of Carolina, and lasts two or three years.

*Propagation and Culture*. The propagation of these plants is easily effected, either by slipping or dividing the roots in autumn, when the stalks decay, planting them out where they are to remain, keeping them clear from weeds, and cutting down the stalks annually in autumn, when they begin to decay. The fourth and fifth sorts may be rendered more forward by the use of a hot-bed. They are all well calculated for the more large borders and clumps, introducing them in the vacant spaces between shrubs. They exhibit a great profusion of flowers until late in autumn.

*Medical Properties and Uses*. These plants possess emetic, tonic, diuretic, and diaphoretic properties; although seldom used for either of these purposes, and in order to produce the effect desired, large quantities of the root, or decoction of the seeds is necessary. As an emetic it operates very mildly. In extreme large doses it has been known to prove cathartic.

## N A T. O R D E R.

### *Gentianæ.*

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GENTIANA ACAULIS.

LARGE FLOWERED GENTIAN.

*Class V.* PENTANDRIA.      *Order II.* DIGYNIA.

*Gen. Char.* *Calyx*, campanulate, four or five parted; segments unequal. *Corolla*, tubular at the base. *Stamens*, five, equal. *Germen*, oblong, two stigmas, sessile, or with a style.

*Spe. Char.* *Stems*, rough. *Leaves*, opposite, sessile, ovate, lanceolate, subtrinerve, acute. *Flowers*, capitate, calicynal segments longer than the tube. *Corolla*, tubular, plaited.

The *root* of this plant is large, woody, and of a purplish-yellow color; the *leaves* are ovate-lanceolate, in sets or pairs, and spread considerable upon the ground; the *stem* is from two to six inches in height, with one or two pairs of leaves on it, and terminated by one very large, upright, handsome flower, which is of a deep azure blue, dotted on the inside. When cultivated in gardens there are sometimes two and three flowers upon the same stem. It is said to be a native of Austria, but is found in some parts of the United States.

All the *Gentians* are beautiful plants, more or less bitter in the roots or leaves. There are many species in the United States, some of which have only lately been noticed, and many are as yet undescribed. The Genus *Gentiana* took its name from *Gentius*, king of Illyria: it gives its name to a large Natural Family. This genus is a very heterogeneous one, although striking by its habit; but the flowers have the peculiarity of being variable in shapes and numbers, wherefore many botanists have rationally divided it into subgenera, which might be rather deemed Genera.

This whole order is distinguished more readily by its habit alone than by character. The species are chiefly natives of cool and

mountainous regions of Europe, Asia, and America. They are mostly dwarf herbaceous plants, with deep blue, yellow, or white flowers, the former color prevailing. They are all pretty and most of them beautiful in the highest degree, but with few exceptions, they are impatient of cultivation. The species are numerous, but mostly valuable as ornaments, rather than their utility in medicine. The following are the varieties cultivated and used in medicine.

*Gentiana Cuta.* Yellow Gentian. This has a thick root, of a yellowish brown color, and a very bitter taste, the lower leaves are petioled, oblong-ovate, a little pointed, stiff, yellowish green, having five large veins on the back, and plaited; the stem three or four feet high or more, with a pair of leaves at each joint, sessile or almost embracing, of the same form with the lower ones, but diminishing gradually to the top; the flowers are in whorls at the upper joints. This is a native of Switzerland, and produces its flowers in June and July.

*Gentiana punctata.* Spotted-flowered Gentian. This plant has the leaves ovate, elongated, and strict; the calyxes shallow, and in form of a basin, the calycine teeth narrow, sharp, and not very leafy; the corolla is of a papery substance, extremely thin, of a dull and very pale greenish straw-color, with very minute dots thickly and irregularly scattered over it; the segments of the border are most generally seven, sometimes eight, but very seldom six, always shorter, narrower, contiguous, rounded, blunt, without any auricles at the base; and finally the bell part of the corolla is blunter and almost the same over the whole bell. It is a native of Lower Canada and is found in some parts of Vermont and New Hampshire.

*Gentiana asclepiadea.* Swallow-wort-leaved Gentian. This plant has the stem upright, nearly a foot in height; the leaves smooth, about two inches long, and three quarters of an inch broad at the base, embracing there, and ending in an acute point; they are of a fine, beautiful green, have five longitudinal veins, joining at both ends, but diverging in the middle, and diminish in size as they are

nearer the top ; the flowers are in pairs opposite, on short peduncles ; rather large, bell-shaped, and of a fine blue color. This is also said to be a native of Switzerland. It flowers in July and August.

*Gentiana linearis.* Linear Gentian. The stem is rough ; leaves linear lanceolate, undulate, ciliate ; flowers capitate, sessile ; corolla campanulate five cleft, with the internal folds denticulate. This plant is a native of the Alleghany Mountains.

*Gentiana ochroleuca.* Pale Gentian. Stem rough angular ; leaves elliptic rough ; flowers capitate, sessile ; corolla ventricose closed, five cleft, inner folds simple, acute. This is a native of this country, and is found in most abundance in the State of New York and Pennsylvania. The flowers are of a yellowish white.

*Gentiana heterophylla.* Grey Gentian. Stem simple, erect, round, smooth ; leaves subtrinerve, lower oboval, obtuse, medial, elliptic, upper oblong, acute ; flowers terminal, sessile, two or four ; calyx campanulate ; segments cuneate, obtuse ; corolla ventricose, five cleft. This is also a native of this country. It is found in Virginia, East Kentucky, and Tennessee ; the flowers are of a pale bluish grey. It is sometimes called Flux-root, and used for the dysentery.

*Gentiana serpentaria.* Snake-root Gentian. Stem smooth, flexuose, subangular ; leaves obovate or oblong, subobtuse, subtrinerve, undulated ; flowers fasciated sessile ; bracteoles petiolate ; calyx campanulate, angular ; segments linear and carinate ; corolla tubular, five-cleft ; segments obtuse notched, inner folds lacerated. This root is considered a specific for men or cattle bitten by rattle-snakes and copper-heads ; it is also said to stupify snakes. It is a native of Indiana and Illinois.

*Gentiana shortiana.* Shortain Gentian. Several assurgent stems, rough, ancipital, one-flowered ; leaves oblong or cuneiform, as long as the intervals, glaucous beneath, edges rough, uninerve, the lower obtuse ; flowers sessile bracteate, calycinal segments, short, oblong ; corolla nearly campanulate, five cleft, internal folds lacerated. This is common in the glades of Kentucky, Tennessee, Illinois, &c. The



flower is blue, and the stem sometimes only about four inches long. It was named in honor, and dedicated to Dr. Short of Kentucky.

*Gentiana torreyana.* Torreyan Gentian. Stem erect, rough, quadrangular; leaves linear-lanceolate, obtuse, glaucous, short, twice as long as the intervals, uninerve, clasping, often revolute; flowers three to five, terminal, sessile, calycinal segments, linear, as long as the tube; corolla nearly campanulate, five cleft, segments acute, inner folds entire. This grows in the glades in the middle States. The flowers are blue, about one inch long. Dedicated to Dr. Torrey.

*Gentiana rigida.* Stiff Gentian. Stem stiff, round, rough; leaves lanceolate, acute, stiff, small, subtrinerve, clasping, longer than the intervals; flowers one to five terminal, calycinal segments linear, as long as the tube; corolla campanulate, five cleft, segments acute, inner folds. It is found growing in West Kentucky, and Tennessee. The stem is red, flower blue, one inch long, leaves glaucous beneath, and small.

*Gentiana quinqueflora.* Five flowered Gentian. This plant is easily known by its branched winged stem; which is small, oval, and the leaves clasping; the flowers five cleft, small, axillary by bunches of three, four or five, and blue. This is common from New England to Kentucky, and the best substitute for the officinal gentian; the whole plant may be used, being intensely bitter like *Sabbatia angularis*.

*Gentiana amarelloides.* Yellow bunch Gentian. This differs from the former, by its having oval lanceolate leaves, stem round with four small angles; flowers axillary and terminal, yellowish; calyx longer foliaceous. It is an inhabitant of Kentucky, Illinois, and other Western States. It is an annual, and equally valuable in medicine.

*Gentiana crinita.* Fringed Gentian. Easily known by its lanceolate leaves, large solitary flowers, on long peduncles, with a fringed four cleft corolla. This is an elegant species, and is found from New York to South Carolina; a perennial.

*Gentiana saponaria*. Soap Gentian. In this species the leaves are oval lanceolate, acute, trinerve; flowers verticillate, sessile; calyx with short oval segments; corolla oblong, with ten teeth, the inner unequally trifid. This is a good medical plant, and is common from New England to Virginia.

*Gentiana clausa*. Closed Gentian. In this species the stem is round, smooth; leaves ovate, lanceolate, acuminate, and subtrinerve; flowers verticillate, sessile; calyx four to six cleft, angular; segments foliaceous and short; corolla clavate, short, closed, with eight or ten teeth, internal teeth equally bilobed. This plant is found on the Taconick and Green Mountains, the flowers are blue, and about half the size of *Gentiana saponaria* and quite shut; there is a variety with ternate lanceolate leaves.

*Gentiana angustifolia*. Narrow leaved Gentian. The stem is simple, slender, and one flowered; leaves narrow, linear, spreading; corolla funnel-shaped, ten-cleft, with five internal lacerate segments; this is a rare and most beautiful plant; the flowers are very large. It is a native of all the middle States.

*Gentiana elliottea*. Elliottan Gentian. Stem round, smooth; leaves oblong, narrow, subacute at both ends, as long as the intervals, subtrinerve, glaucous beneath; flowers three to five terminal, sessile; calyx elongated; segments oblong, acute, as long as the tube; corolla campanulate, inner folds lacerated. Native of North America, and found in the greatest abundance in Kentucky. Dedicated to Dr. Elliott.

*Gentiana gracilis*. Slender Gentian. Stem slender, rough, round, ancipital; leaves twice as long as the intervals, not spreading linear, uninerve, clasping, sessile, long and slender, calycine segments linear, as long as the tube; corolla slender, tubular, sub-campanulate, five cleft, segments deep, acuminate, inner folds simple. Native of West Kentucky. Leaves one inch long, flowers two inches long.

*Gentiana axillaris*. Axillary Gentian. Stem round, rough; leaves oblong, lanceolate, acute at both ends, trinerve, twice as long

as the intervals; flowers axillary, pedicellate, shorter than the leaves; segments of the calyx linear, as long as the tube; corolla tubular, five cleft, segments acute with a lateral tooth. Native of all the middle States. Leaves three inches long, flowers one inch.

*Gentiana collinsiana*. Collinsian Gentian. Stem round, smooth; leaves lanceolate, acuminate, trinerve, longer than the intervals; flowers copitate, involucrate; segments of the calyx lanceolate, involucrate; acute, as long as the tube; corolla campanulate, five cleft; segments mucronate, innerfolds rounded, notched. This is a fine species, leaves three inches long, flowers two inches, and blue. Native of the Western States. Dedicated to Z. Collins.

The above account may be considered as a concise monography of our Gentians; but there are some other species in the Southern States. The perennial kinds, which are the most numerous, have their medical properties concentrated in the roots, which may safely be substituted to the Official Gentian. The annual kinds have the whole plant intensely bitter and available as in *Sabbatia*, *Chelone glabra*, *Verbena hastata*, &c. They all ought to be cultivated for their beautiful blue blossoms, and officinal utility.

*Propagation and Culture*. The different sorts are easily raised by sowing the seed in pots soon after it is ripe; for if kept till spring, it will not succeed as well; the pots should be placed in a shady situation, and kept clean from weeds. Some advise their being sown where they are to remain, but the first is probably the best method. When the plants appear in the spring, they must be daily watered in dry weather, and kept clean from weeds till the following autumn; then be carefully shaken out of the pots so as not to break or injure their roots; and a shady border of loamy earth should be well dug and prepared to receive them, into which they should be put at about six inches distance each way, the tops of the roots being kept a little below the surface of the ground, and the earth pressed close to the roots. If the following spring prove dry, they should be duly watered, to forward their growth. The plants

may remain here two years, by which time they will be fit to transplant where they are designed to grow, removing them in the autumn as soon as their leaves decay; great care should then be taken in digging them up, not to cut or break their roots, as that greatly weakens them. They require afterwards no other culture but to dig the ground about them early in the spring, before they begin to shoot, and in the summer to keep them clean from weeds. The roots continue many years, but the stalks decay every autumn; the same roots not flowering for two years together, or seldom oftener than every third. When they flower strong, they have, however, a very fine and elegant appearance.

The first mentioned sort is mostly propagated by off-sets, or parting the roots, and planting them where they are to remain in the early autumn; but in order to have the plants flower well they must not be often transplanted or parted. They are also capable of being raised from the seeds managed as the first sorts. They all succeed the most perfectly in moist loamy soils, where there is a degree of shade.

All the sorts are useful as ornamental plants, for the various clumps, borders and quarters of pleasure-grounds; those of low growth being planted towards the fronts, and the latter kinds more backward.

*Medical Properties and Uses.* The roots of these plants have a mucilaginous and sweetish taste, followed by an intense bitterness like that of the officinal gentian. They contain amaran, extractive mucilage, resin, sugar, oil, and the principle *Gentia*, which is soluble in water and alcohol, as well as all the active parts; the solutions are more bitter than the root in substance; no astringency. The most active properties are tonic, antiseptic, corroborant, cathartic, &c. They are very little inferior to the officinal gentian in strength and efficacy, they invigorate the stomach, and are very useful in the treatment of debility of the stomach and the digestive organs; they increase the appetite, prevent the acidification of food,

enables the stomach to bear and digest solid food, and thus cures dyspepsia. They are much used in the Southern States in hectic and nervous fevers, pneumonia, &c., acting as a sudorific tonic. They may be used like the common gentian, in general debility, marasm, hysteria, and even gout. Also united to astringents for intermittents and other fevers. The dose in substance is from ten to forty grains, in tincture one-fourth of an ounce to an ounce, in extract two to eight grains. In large doses gentian proves cathartic, like *Podophyllum peltatum*, *Frasera*, &c. They enter into all digestive pills and preparations. A kind of spirit is distilled in Switzerland from gentians, after being macerated in water.

## N A T. O R D E R .

### *Campanulaceae.*

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CAMPANULA MACRANTHA.

GIANT BELL-FLOWER.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, five cleft. *Corolla*, five-lobed, or five-cleft at the apex, bell-shaped. *Stamens*, five, free. *Filaments*, broad at the base. *Style*, covered with hairs. *Stigmas*, three to five filiform.

*Spe. Char.* *Capsule*, three to five valved. *Seeds*, ovate, flattened. *Leaves*, radical, varying in size. *Flowers*, pedunculate.

THE *calyx* is a five-parted perianthium, acute, erect, expanding, and superior; the *corolla* is a monopetalous, bell-form, impervious at the base, half five-cleft, marcescent; divisions broad, acute, and spreading; the *nectary* in the bottom of the corolla, composed of five valves, acute, converging, and covering the receptacle; the *stamens* consist of five capillary filaments, very short, inserted on the tips of the valves of the nectary; the *anthers* are longer than the filaments, and compressed; the *pistillum* is an angular inferior germ; the *style* filiform, and longer than the stamens; the *stigma* three-parted, oblong, and thickish; *divisions* revolute; the *pericarpium* is a roundish angular capsule, three or five-celled, emitting the seeds at so many lateral openings; the *seeds* are small and numerous; the *receptacle* is columnar and adnate. There are various other species cultivated for ornamental and medical purposes.

*Campanula persicifolia.* Peach leaved Bell-flower. This has a root resembling that of Navew, and eatable; the stem is very straight, eighteen inches or more high, (in gardens when cultivated, from two to three feet) unbranched, angular, smooth, and also the



*Campanula macrantha.*





whole plant; the flowers are in a thin spike, one or two together, on very long peduncles, which have two stipules at the base; the corolla is large, broad bell-form, deep blue; the segments are short and moderately acuminate. It is a perennial plant, native of most parts of this country, and is found in many parts of Europe.

*Campanula pyramidalis*. Steeple Bell-flower. This species as it appears in the garden, has thick, tuberous roots, which are milky; these send out three or four strong, smooth, upright stalks, which rise nearly four feet in height, and are garnished with smooth, oblong leaves, whose edges are a little indented; the lower leaves are much broader than those on the stalks; the flowers are produced from the side of the stalks, and are regularly set on for more than half their length, forming a sort of pyramid; these are large, open and shaped like a bell, and mostly of a light blue color. There are varieties of white flowers, and of double flowers. Native of Europe.

*Campanula carpatica*. Heart-leaved Bell-flower. This plant affords a milky juice when wounded; the root is whitish and perennial; the stems herbaceous, annual, weak, hardly branching, bearing one or very few flowers. In gardens it becomes branching and many-flowered; the root-leaves are kidney-form, and roundish; the peduncle elongated and smooth; the corolla smooth and blue. It flowers the whole summer, and is a native of the Alps.

*Campanula latifolia*. Giant Throat-wort. This species has the stem from three to four feet high, and more angular and smooth, but not branching; the leaves are sharply serrate, on short petioles, and hirsute; the flowers are axillary, one or two together, on peduncles shorter than the leaf; calyx smooth, with broad, triangular segments; corolla very large, and blue; the segments triangular, and divided by a line, the fruit obliges the peduncle to bend down with its weight. It is a native of the northern parts of England. There are varieties with single and double purple, and with single and double white-flowers; with single and double pale red flowers; and with striped flowers.

*Campanula trachelium.* Great Throat-wort or Nettle-leaved Campanula. This species has a perennial root; the stems grow from two to three feet in height, upright, stiff, hairy, angular, the angles membranaceous, putting out a few short side-branches; the leaves resembling those of the great nettle, but rather shorter and broader, alternate, ovate, cordate, pointed, hairy, deeply toothed, some times having two or three lobes; petioled, except the upper ones, which are sessile; the peduncles are alternate, axillary, trifid, and three-flowered. The number of flowers, however, varies from one to two and sometimes three and four, and even five; they are large and nodding. It is a native of the United States, but is found all over Europe. It produces its flowers in July and August. There are also varieties, with single and double blue flowers, with single and double white flowers, and with single and double pale purple flowers.

*Campanula grandiflora.* Great-flowered Bell-flower. In this species the whole plant is very smooth; the root is perennial, white, fusiform, the thickness of a finger, and branched; the stems are few, erect, or ascending, simple, round, about a foot high, leafy all over, annual, terminated with one handsome flower, but without scent, nodding a little, with sometimes one or two flowers more from the upper axillas; the leaves are irregularly scattered, sessile or on very short petioles, ovate, or subcordate, short and sharply serrate; sometimes a few of the leaves, and at others all of them are in threes; the corolla is two inches in diameter or more, very deep blue, with numerous blue veins; elegantly pear-shaped before expanding, and at first green. It flowers in June and beginning of July, and is a native of Siberia.

*Campanula medium.* Canterbury Bells. This plant has a biennial root; the leaves are oblong, rough, hairy, serrate, coming out without order from the root narrowing into a petiole. From the centre of these the second season, arises a stiff, hairy, furrowed stalk about two feet high, sending out several lateral branches, with long, narrow, hairy, serrate, sessile leaves, placed alternately; from the

setting on of these leaves, spring out of the peduncles, those on the lower part of the stem and branches four or five inches long, diminishing gradually in length upward, and thus forming a sort of pyramid; the flowers are very large, and make a fine appearance; they are smooth, and the segments turn back at the end; the flowers appear in the beginning of June, and if the season should not prove very hot, they will continue in bloom a month exhibiting great beauty. It is a native of Germany, but is found in various parts of the United States. There are varieties, with blue, purple, white, striped and double flowers.

*Campanula speculum.* Venus's Looking-glass. This species is an annual plant; the stalks are slender and rise from one to two feet in height; the flowers are of a beautiful purple, inclining to a violet color, (sometimes pale, purple or white,) and in the evening fold up into a pentagon figure, whence it is sometimes called *Viola pentagonia*; the calyx is composed of five narrow leaves, which spread open, turn back, and are much longer than the petals; these remain on the top of the prismatic seed-vessel, which is filled with small angular seeds; the stem is tender, quadrangular, naturally procumbent, branched from the bottom at very great angles; the leaves sessile, obovate, and waved about the edges; the flowers axillary, erect, on very long peduncles; the corolla wheel-shaped, and so deeply five-cleft that the segments, which are ovate, scarcely cohere. It is a native of the Southern countries of Europe, flowers from May till September. There are varieties with bright blue flowers, with white flowers, and with pale purple flowers.

*Campanula Americana.* American Bell-flower. This species has an annual root; the stems and germs smooth; the leaves acuminate; the flowers three or more from each axil or bracte; the corollas small; the style longer than the corolla. It is a native of Pennsylvania, and flowers in July. There are varieties with single white, single blue, and with double blue flowers.

*Campanula fruticosa.* Shrubby Cape Bell-flower. This is a

shrubby ornamental plant, a native of the Cape of Good Hope, and flowers here in August.

*Campanula Rapunculus.* Esculent Rampion. In this species the whole plant is full of a milky juice; the root is biennial, spindle-shaped, sometimes branching; the stem upright, angular, two feet high, hairy towards the base, and smooth above; branches alternate, short, upright; the leaves towards the base of stem hairy above on both sides, blunt; the upper ones smooth, and becoming gradually more pointed, obscurely notched; teeth glandular, whitish, not projecting beyond the edge of the leaf; there is an awl-shaped bracte at the base of each peduncle; the segments of the calyx are awl-shaped or setaceous, twice as long as the germ, with a small tooth on each side of the base; the corolla bluish purple, sometimes very pale purple or whitish; each segment marked with three lines; the nectary fringed. It grows wild in all parts of France, and flowers in June, July, and August. The fleshy roots are eatable, and are much cultivated in France as sallads.

*Propagation and Culture.* The plants in this extensive genus are mostly hardy, and increased with very little difficulty. The six first sorts and their varieties, are all capable of being raised by dividing the roots in the autumn or early in the following spring, and planting them out on the beds' borders, or other parts where they are to remain. The former is, however, the better season for the purpose, as the roots become better established before they begin to shoot up into stem. They thrive in almost any soil or situation. As the plants of the steeple-bell-flower, trained for halls and chimneys are seldom proper for the purpose the following season after being planted out, a supply of young plants should be annually raised. And though this is mostly done by offsets, as being the quickest mode, the plants raised from the seeds are always stronger; the stalks rise higher, and produce a greater number of flowers, especially where good seeds can be procured.

In the fifth sort especially with varieties, the parting of their roots

should be annually performed in the autumn, otherwise the plants are apt to degenerate to single, and the soil should not be too light or rich in which they are planted, as in either of these cases they degenerate. In a strong fresh loam their flowers are in the greatest perfection. The broad-leaved sort is also easily propagated by seeds, which it furnishes in great plenty.

In all these different varieties when not sown in the places where they are to remain, the plants should be transplanted into such situations in the beginning of the autumn, as by that process they flower much better.

The seventh and eighth kinds are increased by seeds which should be sown in the spring, on beds of common earth, keeping them clean from weeds till the following autumn, when they may be transplanted into the borders or other parts. And as the plants in the first of these sorts perish or decay the second year, young ones should be annually raised. The latter of these kinds are mostly sown in patches in the borders or clumps, among other hardy annuals at the above period; but if sown in autumn the plants grow much taller and flower much earlier.

The ninth sort is propagated by planting the offsets from the roots in the beginning of the autumn, in beds, or other places, where they are to remain. And the tenth species may be increased by planting the cuttings of the shoots in pots of light earth and placing them in the hot-bed or the stove.

The eleventh kind is raised from the seed, which should be sown in April, in a moist, shady situation, the plants being thinned out to five or six inches distance. They are ready for use in the beginning of autumn. It requires to be sown annually.

There are two hundred and twenty-seven species of *Campanula*, and most of which have been cultivated at different periods of time. The species and varieties here described, are among those mostly sought for; they are all highly ornamental in the borders and pleasure-grounds, as they continue long in bloom, and the tender kinds afford variety in the green-house.

N A T . O R D E R .

*Solonaccæ.*

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SALPIGLOSSIS STRAMINEA.

PAINTED SALITGLOSSIS.

*Class XIV. DIDYNAMIA. Order II. ANGIOSPERMIA.*

*Gen. Char. Calyx*, five angled, five cleft. *Segments*, two lobed. *Stamens*, four. *Style*, tongue-shaped.

*Spe. Char. Corolla*, cream-colored, veined with blue.

THE *stem* rises from two to three feet high, paniculately branched at the top; the *branches* dichotomous, forked; the *corolla* is large, purple or straw-colored, and variegated; the *leaves* are alternate; the lower ones petiolate sinuated; upper ones narrower, entire; the *calyx* is angled, five cleft, funnel-shaped, and gradually widening to the top; the *limb* is five cleft and plicate; the *segments* are two lobed; *stamens* four in number, two long and two short, with the rudiment of a fifth between the two longer ones; *style* truncate at the apex; *stigma* truncate, transverse; *capsule* ovate, two-celled, two-valved, valves bipartible; *seeds* erect, angular, a little compressed, truncate, scabrous from elevated dots; *embryo* arched, with short oval cotyledons. This family are all annual, or biennial plants, and generally clothed with glandular hairs. Natives of Peru and Chili.

*Propagation and Culture.* A light fresh earth, not too rich, will be found to suit this species of plants best. They are all showy plants, and succeed best when the seed is sown in the open border in the spring. They can, however, be reared in the autumn and placed in the hot-house during winter, for spring use.



*Salpiglossis straminea.*









*Enothera Drummondii*

## N A T. O R D E R.

### *Onagrarice.*

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GENOTHERA DRUMMONDII.

EVENING-PRIMROSE.

*Class VIII.* OCTANDRIA.      *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx* of four sepals. *Sepals* connected into a long tetragonal, or eight-ribbed tube. *Segments*, deciduous. *Petals*, four. *Stamens*, eight, erect or declinate. *Polen*, triangular, clammy. *Stigma*, four-cleft, or capitate.

*Spe. Char.* *Stem*, simple, erect. *Leaves*, oblong-lanceolate, toothed. *Capsule*, curved, cylindrical, four-cornered, four-celled, four-valved. *Seeds*, angular, naked.

THIS *plant* has a biennial fusiform fibrous *root*, yellowish on the outside, and white within; from this, the first year arise many obtuse *leaves*, which spread flat on the ground; and from among which the second year, the *stems* come out, rising three or four feet high, upright, of a pale green color, about the size of the finger, not hollow but pithy, angular, slightly pubescent and ragged, tinged with purple, especially towards the bottom, branched alternately almost from the ground; the *root-leaves* run down into a three-sided petiole, which is about one inch in length; the *stem-leaves* are sessile, of a bright lightish green, pubescent on both sides, waved a little about the edge, and having a few small teeth near the base; they are from five to seven inches in length, and about two inches in breadth, having a considerable midrib running the whole length, very wide and tinged with purple towards the base; at the back it is very prominent, with white nerves springing from it, and curved towards the point; the *flowers* are produced all along the stalks on axillary branches, and in a terminating spike; the *leaves* on the former are similar to the stem-leaves, but much smaller, being not more than two inches long,

and a little more than a half an inch in breadth; the *flowers* are solitary, each being separated by a leaflet or bracte, wider in proportion at the base than the proper leaves, and drawn more to a point diminishing gradually towards the top of the spike, till they become linear, scarcely half an inch in length, and a line in breadth.

It is observed that the flowers usually open between six and seven o'clock in the evening, whence the plant is called Evening or Night-Primrose; the flowers nearest the top of the stem bloom first in June, the stalk keeping constantly advancing in height, and there is a constant succession of flowers till late in the autumn. It is a native of North America. The roots are frequently eaten by the natives in the spring season.

*Oenothera longiflora*. Long-flowered Tree-Primrose. This species has also a biennial root; the root-leaves are numerous, broad-lanceolate, tooth-letted, pubescent, with a white rib, obliquely nerved; the stems usually five, springing out below the root-leaves, quite simple, ascending, rough-haired, green, with long spreading hairs; the central stem grows up later; the stem-leaves are ovate-oblong, sessile like the root-leaves; the flowers axillary from the upper leaves, with the germ and calyx hairy. It is remarked by Curtis, that luxuriant specimens exceed five feet in height, that the flowers are uncommonly large and showy, and continue blooming from July to October. It is a native of Buenos Ayres.

*Oenothera mollissima*. Soft Tree-Primrose. This species has a shrubby stalk more than two feet high, hairy, with narrow, lanceolate leaves, a little waved on their edges, and ending in acute points; the flowers are axillary, like the other sorts, at first pale yellow, but as they decay changing to an orange color, smaller than those of the first sort; the seed-vessels are slender, tapering and hairy. It is also a biennial plant, and a native of Buenos Ayres. It flowers from June to October.

*Oenothera biennis*. Broad-leaved Tree-Primrose. This species is a perennial, but altogether herbaceous, at least in this country,

and therefore improperly named; the flowers which are large and showy, though they open in the evening, remain expanded during most of the ensuing day; the flower-bud, germ, and stalk, contribute to render this species one of the most ornamental and desirable. It is a native of Virginia.

*Oenothera pumila.* Dwarf Tree-Primrose. This has also a perennial fibrous root; the lower leaves ovate, small, close to the ground; the stalk slender, near a foot high; the leaves smaller, of a light green, sessile, ending in blunt points; the flowers small and of a bright yellow; it sends up many flowering stems, producing blossoms from April to July, opening in the morning as well as the evening. It is a native of North America.

*Propagation and Culture.* These plants are all capable of being raised from seeds, and some of them by parting the roots and cuttings. The seed should be sown either in the autumn or early in the spring in the first and third sorts, upon a bed or border in the open ground, thinning and watering the plants properly, and keeping them free from weeds till the following autumn, when they may be removed with balls of earth about their roots to the places where they are to remain. Some may be set out at the time of thinning in nursery-rows, six inches apart. They also rise without trouble from the scattering of the seeds.

In the second sort, the seed should be put into the ground in the open borders or other parts, in the last part of March, where the plants are to remain. One plant is sufficient in a place, which should have a stick set to support its branches when they have advanced a little.

*Medical Properties and Uses.* These plants are mostly esteemed for their farinaceous and mucilaginous qualities. The roots are eatable, and are likewise used as emollients.

## N A T. O R D E R.

### *Apocynæa.*

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APOCYNUM ANDROSÆMIFOLIUM.

DOG'S-BANE.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx* five parted. *Corolla* campanulate. *Tube* inclosing five acute teeth. *Throat* naked. *Stamens* inclosed. *Anthers* sagittate, cohering by the middle to the stigma. *Ovaria* two. *Styles* almost wanting. *Stigma* dilated, conical at top.

*Sp. Char.* *Leaves* ovate, glabrous. *Cymes* terminal and lateral. *Tube* of the corolla twice as long as the corolla.

THE *root* is perennial, large, bitter and milky like the whole plant; the *stem* is very smooth as well as the leaves, lacteent and with a tough fibrous bark; from three to five feet high, with few branches and leaves, cylindrical, often rose-colored, and forked several times upwards; the *leaves* are opposite, petiolate, pale beneath, ovate, acute, entire, and two or three inches long, with one long nerve; the *flowers* stand on cymose racemes, lateral and terminal; always longer than the leaves, lax, nodding and few flowered; the *bracts* are minute, acute, on the peduncles; the *calyx* is short, five-cleft and acute; the *corolla* is white, tinged with red, similar to a little bell, and divided into five spreading acute segments at the top; *stamens* five with short filaments; *anthers* connivent arrow-shaped, cohering with the stegyne or singular body covering and concealing the pistils (mistaken for a stigma by many botanists), this is thick and round; there are five glandular *corpuscles*, (called nectaries by some) alternate with the stigma; there are two ovate concealed *pistils* and two sessile stigmas; fruit a pair of follicles, slender, linear, acute, drooping, cylindrical; *seed* numerous, oblong, embriate, seated on a central receptacle or spermophore, and crowned by a long down.



*Apocynum Androsaefolium?*





All the plants in this order are very natural. The structure of the anthers and stigmas easily distinguish them from *Asclepiadææ*, to which they are more nearly allied than to any other. The order *Strichniacææ* is distinguished from this in the peltate seeds. The order is also closely allied to the *Rubiacææ*, but is easily distinguished from it, in the want of interpetiolar stipulas, and in the superior ovarium, &c.

We here turn from the description of plants endued with mild and agreeable properties, and fragrant flowers, and often bearing food for man, to others, (though of themselves apparently harmless) which are classed among the most dangerous poisons, whose juices, though milky are not a wholesome and delicious beverage, but on the contrary, acrid, caustic, and bitter. They are readily known by the twisted direction of the corolla, which has been compared to the rays of St. Catherine's wheel. *Apocynum* in Greek, means dog's-bane, and the specific name implies the similitude of the leaves to *Androsenum*. There are many other species of this genus in this country, but perhaps none so elegant and pretty. All have small white flowers, while in the present one the flowers are larger and flesh or rose-colored. The *Apocynum cannabinum* has been used by the Americans to make a kind of hemp; the fibrous tough bark of all the species are calculated to afford it by maceration. All have a bitter, milky juice, and yet the flowers smell of honey and produce that sweet substance.

Bees and other insects collect this honey, but small flies are often caught by inserting their proboscis between the fissures of the anthers, where it is not easy to extricate it; they are often seen dead in that confined situation, after unavailing struggles, from whence one of the names of this plant, Catch-fly. No animals eat it. This species is a common plant, and is found from Canada to Georgia, and even Missouri. It grows in woods, hills, dry or sandy soils, along fences, and particularly over old uncultivated fields; but is rarely found in limestone soils and rich land. It blossoms in summer from June till July.

*Propagation and Culture.* These plants are capable of being easily propagated by dividing their creeping roots early in spring, before the stems shoot forth; they require a light, dry, sandy soil, which answers well for all the species. Some of the rarer kinds may be grown in a peat border with great success.

*Medical Properties and Uses.* Some writers have mentioned this plant to be poisonous and blistering like *Rhus vermix*; but on the contrary we know it to be quite harmless. The root when chewed has an intensely bitter taste, which is perceptible in the whole plant in a lesser degree, except the flowers; this bitterness arises from the milk it contains. The decoction is of a red color and very bitter. The spirituous solution is colorless but bitter. It contains, therefore, a bitter principle soluble in water and alcohol, and a coloring principle not soluble in alcohol; besides a volatile oil and caoutchouc.

The whole plant is very active and highly valued by the Southern Indians. It is tonic, emetic, alterative and syphiletec, the root is the most powerful part, but it should be used fresh, as time diminishes or destroys its power. The dose of thirty grains of the fresh powdered root will act as an emetic, similar, and equal to Ipecacuanna; in smaller doses it is a tonic, useful in dyspepsia and fevers. The Chickasaw and Choctaw nations employ it in syphilis, and consider it a specific, they use the fresh root chewed, swallowing only the juice. For this latter use it has been introduced into Tennessee and Kentucky as a great secret. It must act as a tonic in all those cases, tonics being often emetic and antiveneal. The principal objection to this plant is its nauseous and intensely bitter taste, and many substances may be found of a much less disagreeable nature. It is mostly used for its laxative properties. A wash made of the root is said to be good for ulcers, scalled head, &c. It enters into many of our most valuable compounds, and we doubt whether any practitioner acquainted with its medicinal properties can get his own consent to abandon its use.





*Arbutus unedo*

## N A T . O R D E R .

### *Bicornes.*

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ARBUTUS UNEDO.

STRAWBERRY TREE.

*Class X.* DECANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, five-parted, obtuse. *Corolla*, monopetalous, ovate flattish at the base. *Divisions*, obtuse, revolute, small. *Stamens*, ten, subulate, slender at the base. *Anthers*, bifid and nodding.

*Spe. Char.* *Pistillum*, subglobular germ, on a receptacle marked with ten dots. *Style*, thickish and obtuse. Pericarpium a roundish five-celled berry. *Seeds*, small and bony.

THE common *Arbutus* or Strawberry Tree, rises to the height of twenty or thirty feet in its native situation, but rarely with an upright stem; when cultivated it rarely attains the height of twenty-five feet. It usually puts out branches very near the ground; the leaves keep on all the winter, and are thrust off in the spring by new ones, so that it is always clothed with leaves; the berries contain a large number of seeds, and are roughened with the tubercles of the seeds. There are several varieties, some with large oval fruit, with round fruit, with double flowers, and with scarlet flowers, there are also the curled-leaved or cut-leaved, the broad-leaved, and the narrow-leaved.

*Arbutus andrachne.* Oriental Strawberry Tree. This species very much resembles the first, except the bark, which is not quite so rough; some of the leaves have no serratures, and the panicle is upright and viscid, and far from being smooth. It grows in its native state to a middling sized tree, with irregular branches; the leaves are smooth, large, and somewhat like those of the Bay Tree, but not quite so long; the flowers are like those of the common Arbu-

tus, but thinly set upon the branches; the fruit is oval and of the same color and consistence with the common sort, but the seeds of this are flat, while in that they are pointed and angular. This plant grows naturally in all parts of Asia.

*Propagation and Culture.* The most usual method of raising these beautiful evergreens is by sowing the seeds; but they are sometimes capable of being raised by cuttings and layers.

With the first species the seeds should be collected when perfectly ripe, in November, or the following month, and preserved in dry sand till the period of sowing, which may be either in December or the early spring season. The seed should be sown in pots and lightly covered with mould, then plunged into an old tan hot-bed and covered with glasses. By this method of culture the plants will be up in April, when they should be often but sparingly watered, and kept free from weeds.

As the hot season advances the plants should be shaded during the heat of the days; but in warm weather open all night to receive the dew, and only covered in the middle of the day. By this method the plants become strong the first summer. In the beginning of October they may be shaken out of the pots, and their roots carefully separated, planting them singly in small pots filled with light earth; then plunging the pots into an old bark-bed under a common frame, carefully shading them from the sun in the middle of the day, and giving them water as they require: in this bed the pots should remain during the winter, exposing them to the open air whenever the weather is favorable, but in frosty weather they should be covered sufficient to protect them. In the spring following they may be removed to a gentle hot-bed, which requires no other covering but mats. This enables them to make strong shoots early in the summer, by which they become in a better condition to bear the cold of the succeeding winter. In this bed they should continue during the summer, and be well protected in the following winter.

After the plants have obtained the height of two or three feet, they may be shaken out of the pots, and planted in the open ground

in the places where they are to remain, which should be done in April in order that they may have sufficient time to take good root before the winter, which is apt to injure them when newly planted out; and as all the earth about their roots is thus preserved, they will succeed better.

These may be considered as middling hardy plants and seldom hurt, except in extreme hard winters, which often destroy the young tender branches, but rarely the shoots.

The most proper season for transplanting is September, at which time the blossoms are beginning to appear; and when dry at that season, and they are kept moist, they very soon take root, but towards November their roots should be well covered to keep out the frost. In performing this business the balls of earth round their roots should be preserved.

In raising the second species the seeds should be procured from abroad and the plants be left longer in the pots, say from three to four years, or until they have become perfectly woody, and when they are put out, let warm situations be chosen for the purpose, where the soil is dry, as the plants do not succeed well where the land is too moist.

In raising them by the second method or that of cuttings, they should be made from the young shoots, and be planted in pots in the spring or summer months, plunging them into a good hot-bed till they have taken root. In the layer mode of propagation the young shoots should be chosen, as they otherwise seldom take root in less than two years. In grafting them, stocks of any of the varieties may be had recourse to.

These are some of the most ornamental plants of the evergreen kind for shrubberies and pleasure grounds, that we can boast of. The first sort and varieties sometimes rise to a considerable height, from fifteen to twenty feet. They are now found in most plantations throughout England, but rare in this country. Their great beauty is in the months of October and November, which is the season when they are in flower, and the fruit of the former year is

ripe, as it is a whole year growing to perfection. As the leaves of the Andraclne are larger than in the other sorts, they have always a better effect as evergreens.

When there is plenty, both of fruit and flowers upon the trees, they certainly make a very gay and beautiful appearance, as most of the other plants are past their beauty at this time. The trees which have large oval fruit make the greatest figure; the flowers of this being larger and oblong. The variety with double flowers is a curiosity, but their flowers having only two rows of petals make no very great appearance, neither do the trees produce any great quantity of fruit; the other is therefore preferable. That with red flowers makes a pretty variety, especially when intermixed with the other, for the outsides of shrubberies, as they are of a scarlet bright red color at their first appearance, and afterwards change to purple before they fall off. The fruit in this is the same as the common sort.

They delight in a generous but not too moist soil, as when planted in dry ground they seldom produce much fruit; the flowers coming forth in autumn, when the winter proves severe they are generally destroyed, consequently, to obtain good fruit, they should be placed in warm situations, and where the ground is not naturally moist; a good quantity of loam should be placed about their roots, and in dry springs they should be freely watered.







*Salvia rosmarino*

## N A T. O R D E R.

### *Personatæ.*

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CHELONE OBLIQUA.

RED FLOWERED CHELONE.

*Class XIV.* DIDYNAMIA. *Order II.* ANGIOSPERMIA.

*Gen. Char.* *Calyx*, one leafed, five-parted, short, and permanent.

*Divisions*, erect ovate. *Corolla*, monopetalous, ringent. *Tube*, cylindric, short. *Throat*, inflated, oblong, convex, flat beneath.

*Stamens*, consist of four filaments, hid. *Anthers*, incumbent.

*Sp. Char.* *Pistillum*, an ovate germ. *Style* filiform, length of the stamens. *Stigma*, obtuse. *Seeds*, many, roundish.

THE *roots* of this plant do not creep so long as some of its species, but are to be considered as creeping roots; the stalks rise from three to four feet in height, are strong, and assume quite a woody appearance; the *leaves* are broad, large, oblique, deeply notched on their edges, and stand upon short foot stalks; the *corolla* is of a bright purple color, and consequently makes a more beautiful appearance than any of its species. This is strictly an American plant, a native of Virginia. It flowers from September to November.

*Chelone hirsuta.* Hairy Chelone. This species resembles *Chelone glabra*, but the stalks and leaves are very hairy, and the flower is of a purer white. This is a native of all parts of New England. There are also varieties with white flowers, with blue flowers, with red flowers, and with purple flowers.

*Chelone penstemon.* Forking Chelone. This plant has a cylindric, pubescent, upright stem, which is about a foot and a half high, and puts out several side branches; the leaves oblong-lanceolate, ending in a point; the flowers are in short loose spikes from the divisions of the stalks, and of a purple color. It is a native of North America. All the species and varieties, flower in the autumn, from September to November.

*Propagation and Culture.* The mode of propagation in the two first species is by the roots, which multiply easily, being parted in autumn or early in spring, and planted where they are to remain. The third sort must be raised annually from the seed, by sowing it in the autumn as soon as it is perfectly ripe. These plants will all rise in the following spring, and may be planted out in the borders and patches during the summer months. They are hardy and will endure almost any season, and succeed well in most soils and situations.

These plants are all highly ornamental, and produce a most beautiful effect for two or three months in autumn, after the principal bloom of most others is over; and from being of different colors, produce a great variety when planted in the borders of walks and pleasure-grounds.

*Medical Properties and Uses.* These plants all possess tonic, astringent, and stimulating properties. They are mostly used in connection with other agents in the form of Bitters, Tinctures and Decoctions. The leaves and heads are the parts recommended for use; they are highly bitter, but of a pleasant nature, and give out their virtues both to water and alcohol. The Canadians and North-western Indians have long made use of these plants in the treatment of Liver complaints, Dyspepsia, Syphilis, and as a tonic to improve and correct the tone of the stomach. It should be gathered in the fall when the flower is in blossom, as the plant then possesses more virtues than at other times, and should be placed in a shady situation to dry, out of the rays of the scorching sun. A tincture is made by adding one ounce of the dried leaves to one quart of diluted alcohol; the dose of which is one tea-spoonful, from twice to three times a day. An extract is prepared by evaporation of either the tincture or decoction.





*Bignonia railicans*

## N A T. O R D E R .

### *Personatæ.*

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BIGONIA RADICANS.

ASH-LEAVED TRUMPET FLOWER.

*Class XIV.* DIDYNAMIA. *Order II.* ANGIOSPERMIA.

*Gen. Char.* *Calyx*, one-leafed, erect, cup-form, five-cleft perianthium. *Corolla*, monopetalous, campanulate. *Tube*, very small, length of the calyx. *Throat*, long, ventricose beneath, oblong, campanulate. *Border*, five-parted. *Stamens*, shorter. *Anthems*, reflex, double.

*Spe. Char.* The *Pistillum* is an oblong germ. *Style*, filiform. *Stigma*, capitate. *Pericarpium*, two-celled, two-valved, silique. *Seeds*, many, imbricate, compressed, membrane winged on both sides.

THE *stems* of this plant are rough, and send out many trailing branches, putting out roots at their joints, and thereby fastening themselves to the trees in their natural places of growth, and climbing to a great height; when it is planted against walls, it strikes into the mortar of the joints so strongly as to support the branches, and will rise to the height of forty or fifty feet; the *leaves* are opposite at every joint, compressed of four pairs of leaflets, terminated by an odd one; they are serrate, and end in a long sharp point; the *flowers* are produced at the ends of the shoots of the same year, in large bunches; they have long swelling *tubes*, shaped somewhat like a trumpet, whence the plant has received the appellation of Trumpet Flower; the *corolla* is of an orange color, and opens at the beginning of August. It is said to be a native of North Carolina, but may be found in all parts of the New-England States.

There is a variety of this plant with small flowers. Several other species of this genus are equally deserving of cultivation.

*Propagation and Culture.* All of the plants contained in this order succeed best in such soils as are rich, and rather inclined to moisture. The seeds should be sown in pots, of light fresh earth, early in the spring, plunging them immediately in a moderate hot-bed of tan; when the young plants appear they should be placed in warm sheltered exposures until the autumn, when they require the protection of frames and glasses, or of a good green-house, free air being admitted when the weather will admit. After the plants have attained sufficient growth in these situations, they may be removed from the pots and planted out in the nursery, protection being given them in the winter season when it proves severe.

Some, however, prefer raising plants of this sort by setting the cuttings of the young shoots early in the spring, in pots of the same earth, plunging them in moderate hot-beds till they have stricken full root, water and shade being occasionally given them, gradually as the summer advances inuring them to the full air in order to harden them. On the approach of autumn, they should be taken under cover of some sort when the weather is severe. In the spring following, they may be, if necessary, planted out where they are to stand, or be put in the nursery ground. In all the kinds, the plants raised from seeds are much longer before they produce flowers than when they are propagated by layers or cuttings of the flowering plants.

The chief culture, after the plants are fully established, is that of cutting out all the small, weak shoots of the preceding year, in the winter season, and shortening the stronger ones to the length of about two feet, in order to induce flowering shoots to be sent out for the ensuing season. These plants are all of long duration, when carefully managed.



## N A T. O R D E R.

### *Compositæ.*

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ASTER AMELLUS.

ITALIAN ASTER.

*Class XIX.* SYNGENESIA. *Order II.* POLYGAMIA SUPERFLUA.

*Gen. Char.* *Calyx* imbricate, with the lower scales often spreading.

*Florets*, of the ray generally more than ten, rarely less, and not yellow. *Receptacle*, naked. *Pappus*, simple.

*Spe. Char.* *Leaves*, oval-lanceolate, acute, serrate, triply nerved; the lower ones attenuate at the base; upper entire. *Scales* of the calyx oval, obtuse, oppressed, slightly reflexed at the summit.

THE Italian *Aster* sends up quite a number of stems, all proceeding from one root, each stem branching near the top into eight or ten *peduncles*, and each peduncle terminated by a single large, blueish-purple flower; having blue rays and a yellow disk. The name given to this genus is Starwort, in reference to a star, in allusion to the numerous rays or petals of this genus around the circumference resembling a star. It is a very extensive genus, mostly natives of North America. The species are quite variable in size, rising from eight or ten inches to as many feet in height. In some parts of England they are extensively cultivated, where they are called Christmas Daises, in allusion to their late flowering; but in this country they bloom much earlier. They vary much in their colors: some are purple, red, blue, white, lilac, &c. They are to be found in every part of the New England States by the road-sides, in the open fields, and in woods.

In England and France, and many parts of other eastern countries, many of the species are cultivated both as an ornament and for economical purposes. A few of the sorts mostly sought for are here introduced, leaving many others equally as valuable and deserving the attention of the gardener, with their numerous varieties.

*Aster Chinensis.* China Aster, or China Starwort. This is an elegant annual plant, rising in height from eighteen inches to two feet; the stem is erect, stiff, furrowed, and about the size of the little finger, putting out long bending branches from the top to the bottom; the leaves near the ground, and at the origin of the branches, are large, and resemble those of common *Chenopodium*, (the mandrake tribe;) those on the branches are much smaller, and the upper ones narrower and very entire; the flowers are the largest and most beautiful of any of the species in this genus; the disk yellow—at first flat, then convex; the floscules of the ray are broad and long, and scarcely notched at the end.

There are varieties of this plant with single white flowers, single purple flowers, single red flowers; with double white flowers, double blue flowers, double red flowers, and with variegated blue and white flowers.

*Aster tradescanti.* Virgin's Starwort. This species is clothed with radical leaves three or four inches long, like those of the willow; their color varying from a green to a purplish brown, with small scattered serratures. From the centre of these leaves rise several round, smooth, woody, brownish stems, clothed with similar leaves, only shorter. These are elegantly divided into many slender, hard bunches, two or three feet high, and adorned with an abundance of very small white flowers during the months of September and October. According to some, the disk is purple. The ray of the corolla is white, and afterwards purplish. It is a native of Virginia.

*Aster Alpinus.* Alpine or Great Mountain Starwort. This species rises from four to six inches in height, never more than ten in its native situation, and when transplanted into gardens, from nine to ten, but never above sixteen. At the top of each stalk is one large blue flower, somewhat like that of the Italian Starwort. It is a native of the Alps, and flowers in June. There are also varieties of this, some with white rays and some with blue rays.

*Aster Novæ Angliæ.* New England Starwort. This species

sends up a numerous cluster of stems, which rise from four to five feet in height; these are brown, terminated by large purple violet flowers, growing in a loose panicle, and expanding in August. The peduncles are so short as scarcely to be seen among the flowers. This is also a native of New England.

*Aster grandiflorus.* Great Blue Pyramidal Aster. This species sends up several stems from three to four feet in height; they are stiff, reddish, hairy, and branching pyramidically. The branches have small lanceolate leaves growing alternate, hairy and rough to the touch, the size of those of the common hyssop, and each terminated by one large blue flower, which makes its appearance in the latter part of October. This is a native of Virginia.

*Aster puniceus.* Red-stalked American Starwort. This sort sends up several large stems from two to three feet in height, of a purple color; but the flowers are on single peduncles, forming a corymb at top of a pale blue color; they appear about the beginning of September. This is a native of all the northern United States, and varies in height, according to the soil, from three to eight feet, having the stems either of a dark purple or a reddish green. There is a variety in which the flowers are purple, inclining to red, and surrounded by a few narrow leaves. This is from Philadelphia, and flowers in August, and sometimes not until November.

*Aster undulatus.* Waved Starwort. This species produces leaves broad and heart-shaped at the bottom; the stems rise from two to three feet in height, with small side branches, upon which the flowers are placed in loose spikes; they are of a pale blue color, inclining to white. It flowers in August, and is a native of N. America.

*Aster linifolius.* Flax-leaved Starwort. This species is clothed with leaves which are lanceolate, gradually narrowing at the end; peduncles very small subulate scale; the stems are strong, from two to three feet high, putting out many side branches nearly half their length, terminated by one blue flower which appears in August and September.

*Aster tennifolius.* Fine-leaved Starwort. In this species the stems rise to about five feet in height; they are angular, smooth, and branching very little; the leaves are alternate, and not very rough; the flowers terminal, solitary, small, and white; the peduncles have very large subulate leaflets scattered over them. Native and inhabiting the Western States.

*Aster Ericoides.* Heath-leaved Starwort. In this species the stems are very slender, about three feet high, with slender side branches most of their length, so as to form a thick bush; these are terminated by single flowers.

*Aster dumosus.* Bushy Starwort. In this species the stems are much less in number, upright, and about two feet in height, full of branches which are filiform; the stem-leaves being narrow-lanceolate, on the branches linear; the peduncles filiform, striated, one-flowered, and clothed with very narrow leaflets; the flowers small with an erect, imbricate, loose calyx; the ray copious and white; the disk yellow, with less flowers.

*Aster concolor.* Single-leaved Starwort. This species sends up stems about four feet in height; the flowers are pale blue. The whole plant is tomentosae, especially the calyx and leaves; the raceme single, with very short peduncles. It is a native of Virginia.

*Aster divaricatus.* Divaricate Starwort. In this species the stem is obscurely furrowed, of a pale red, not very erect, but irregularly flexuose, corymbosely branched, the branches divaricate and much divided; the leaves of the same form, sometimes having a single serrature, the edge scabrous; if the finger should be drawn towards the base the surface will be found to be rough with invisible hairs; the flowers rather solitary, somewhat small, on long, scaly, yellow peduncles; scales of the calyx distant, in fine rows; disk of the corolla yellow; ray pale blue, revolute; in height nearly four feet, having broad leaves at the bottom, which diminish gradually to the top. The flowers appear at the latter end of August, and is a native of Virginia.

*Aster Novibelgii.* New Holland Starwort. This species produces rough stems about two feet high, dividing towards the top into many forked branches, diverging from each other. The flowers grow almost in an umbel, and appear in the beginning of September. It is a native of Virginia, but may be found all over the New England States.

*Aster paniculatus.* Panicked Starwort. In this species the stems rise about four feet, the stems putting out numerous side branches towards the top, which grow erect, forming a loose spike of orange colored flowers, which are somewhat bluish; these expand about the middle of October. This is a native of North America, growing in all of the Middle States.

*Aster fruticosus.* Shrubby Starwort. In this species the stems rise about three feet high, with woody side branches, having clusters of leaves quite narrow, somewhat like those of the Larchtree; the flowers are produced from the side of the branches upon long, slender peduncles, singly; they are of a pale blue color, and appear in the beginning of March. It is a native of the Cape.

*Propagation and Culture.* The hardy kinds of these plants easily succeed in almost any soil or situation. The China Aster, or third sort and its varieties, being annual plants, are propagated by sowing the seeds of the different kinds from the beginning of March to May, on a very moderate hot bed, and very lightly covered, the air being admitted as much as possible when the weather is suitable, in order to promote the vigorous growth of the plants. When they are sufficiently strong they should be planted out either into beds of earth at six inches distance each way, or into the places where they are to remain, into the borders or other parts—the latter is probably the better practice, as they grow more strongly. In the bed method they are usually transplanted after a few weeks, with clumps of earth attached to their roots, into the situations where they are to flower, the mould being made fine about them. A few of the fine double varieties may also be put in pots. Moist weather is the most situa-

ble for cultivation, and when the weather proves dry or unfavorable a little water should be given them, especially at the time when they are first planted.

When the sowing of these seeds are not made at an early period, the best practice is to let it be done in the situations where the plants are to grow, which should be rather warm and dry, the mould being made fine by the rake previous to their being sown; as by this process their growth is less checked than when transplanted. In either method of sowing, care should be taken to cover the seed but slightly, and that the bed of earth be made fine and mellow. The only further culture which they require is that of keeping the plants perfectly free from weeds and well supported in the time of flowering.

The Italian species, as well as the whole of the hardy American sorts, may be easily increased by parting the roots. In the American, it is best performed in the autumn, the parted roots being immediately planted out in the places where they are designed to flower. The Italian sort requires some little different treatment—they should have the roots parted and replanted as soon as the flowers begin to decline, as, if deferred till autumn or spring the growth is very much retarded and weakened, and they do not flower so freely. The roots in this kind should not be taken up oftener than once in two or three years, where a full display of flowers is the principal object.

This sort has been very much neglected, especially since the introduction of the American species; but from the plants creeping less by the roots, and requiring less support in the stems, they are equally deserving of regard for the purpose of cultivation.

As this sort is not, however, capable of increasing fast by dividing the roots, it may be more readily multiplied by planting the cuttings from the young shoots, in the latter part of spring, in situations where the mould is light and fine, being well shaded from the effects of the sun till they are perfectly established in the soil. The last, or shrubby sort, must be propagated by setting the cuttings of the

young shoots in pots of light earth in the spring or summer months, which should be plunged in a hot-bed for the purpose of inducing them more readily to strike root. They may then be placed out in the open air during the summer season, but in the autumn and winter they require protection.

The China Asters, are desirable, for the purpose of variety, in the clumps and common borders of gardens and pleasure grounds. In saving the seeds they should be selected from the best colored flowers of the most perfect plants, in October, when they are fully ripened, and should be gathered when they are quite dry. The shrubby varieties afford a beautiful contrast among other green-house plants, both in the summer and winter season.

## N A T. O R D E R.

### *Amaranlaceæ.*

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AMARANTHUS HYPOCHONDRIACUS. PRINCE'S FEATHER.

*Class XXI.* MONŒCIA. *Order V.* PENTANDRIA.

*Gen. Char.* The *Calyx* is a five or three-leaved perianthium, upright, colored, and permanent. *Leaflets* lanceolate, acute. *Corolla* none. *Anthers* oblong, versatile, especially the male flowers.

*Spe. Char.* The *Pistillum* has an ovate germ. *Styles* three, short and subulate. *Stigmas* simple, permanent. *Seed*, single globular.

This is a most beautiful species of the Prince's Feather, so called; the stem is erect, about a foot and a half or two feet in height, smooth except under the leaves, where it is a little scabrous reddish, roundish, streaked and grooved; the *leaves* are red and green, acute, with elevated veins; the *petioles* are channelled, and of a reddish color; the *racemes* are naked, red, lateral, short, and placed about the stem without order; the *calyx* is five-leaved; the *leaflets* oblong, acute, membranaceous, and red. It varies with leaves more or less red—with very red and pale racemes—with a green and red—with a rough and smooth stalk. It flowers from July to September. When in blossom this plant is extremely delightful. It is a native of Virginia.

The species that demand the attention of the gardeners and florists are numerous, and would require too much space for a proper description. Among those mostly valued are the sorts hereinafter given.

*Amaranthus melancholicus.* Two-colored Amaranthus. The stems are upright, from six to eight inches in height, dark purple, smooth, streaked, and simple; the leaves are blunt, simple, waved, emarginate, wrinkled, mucronate, with a short white point; the





*Amaranthus Hypochondriacus*



lower ones rufous liver-colored on the upper surface, bright purple on the lower, with elevated veins—the upper ones green, with red tips; the petioles channelled, bright purple, smooth, and edged at the top with the decreasing leaf; the lower ones nearly their length; the glomerules subsessile, dark purple, on a very short, undivided peduncle; the calyx five leaved; the leaflets oblong, purple, membranous, ending in a dark red point. Professor Martyn observes that this species varies in the color of their leaves: as, when grown in the open air, they are of a dirty purple on their upper surface, and in the younger ones green; while, in the stone, the whole plant is of a beautiful fine purple color. It is, however, easily distinguished in all states by its color, its leaves, its lateness of flowering, &c. It is a native of Guiana and the East Indies. Mr. Miller remarks that it grows to the same height of the Tricolor, and in the manner of its growth greatly resembles it; but the leaves have only two colors, an obscure purple and a bright crimson, so blended as to set off each other, making a fine appearance when the plants are vigorous.

*Amaranthus tricolor.* Three-colored Amaranthus. In this species the stems rise from a foot and a half to two feet in height; they are obscurely angular, smooth, and upright; the leaves blue with a red point, smooth and waved; the younger ones yellow, with red, especially the tips; those in a more mature state coralled at the base, violet in the middle, and green at the end; the old ones green with a violet base; the petioles very long, smooth, green, channelled, and bordered; the glomerules germinate, green, and axillary; the calyx three-leaved; the leaflets oblong, acuminate, membranaceous, with a green nerve. It varies in the color of the leaves, which are less painted in the open air than in the stone. It has been long cultivated for the beauty of its variegated leaves, in which the colors are elegantly mixed. When the plant is in full vigor, these are large and closely set from the bottom to the top of the stalk. The branches also form a sort of pyramid; so that in form, as well as the beauty

of its flowers, there are but few plants that can vie with it in grandeur. It is a native of Guiana. Flowers all summer.

*Amaranthus sanguineous.* Spreading, or Bloody Amaranthus. In this species the stem is upright, about four feet in height; they are firm, round, red, and streaked; the leaves somewhat convex, or rather, so contracted as to possess the form of a boat, and pointed; the older ones rather blunt; the upper surface is a mixture of red and green, the lower more or less purple; the petioles are tinged with purple, channelled, and quite rough, and winged at the top with the leaf; the racemes are very red; the branches smooth,—the lower ones spreading; the calyx five-leaved; leaflets oblong, blunt, membranous, and red; the bracteas subulate-setaceous, red, longer than the flowers, closely surrounding the glomerules.

*Amaranthus caudatus.* Pendulous Amaranthus, or Love-lies-bleeding. In this species the stem is from two to two and a half feet in height, green, obscurely angular, grooved and streaked, smooth, and covered at the top with thin, whitish, scattered hairs; the upper part somewhat nodding on account of the extreme length of the racemes; the leaves are smooth, bright green, blunt, emarginate, with an incurved transparent point; the petioles are much shorter than the leaf; the racemes terminating, elegantly purple, very long, cylindrical, and composed of flowers very closely glomerate; the calyx is five-leaved; the leaflets oblong, red, acuminate, membranaceous; the bracteas oblong, pointed, and scattered.

*Amaranthus maximus.* Tree Amaranthus. In this species the stems rise to the height of seven or eight feet, sending off numerous horizontal branches at every ten or twelve inches; the leaves are green, rough, and luxuriant; the spikes are seldom half the length of those of the other sorts, but are much thicker. It is said to degenerate gradually into the smaller kind. The seed, which at first are white, also become red. It flowers in August and September, and is a native of Persia.

*Amaranthus cruentus.* Various-leaved Amaranthus. In this species the stem is a foot and a half or two feet in height, grooved, green with red streaks, smooth, and slightly pubescent among the flowers; the leaves are green, spotted with brown above, red beneath, bluntish with a reddish short point; the petioles are red, channelled, and smooth; the racemes red and green, with branchlets spreading and nodding a little; the calyx five-leaved; the leaflets oblong, pointed, white-membraneous, with a red nerve, and a point of the same color. It varies of a shining red color—with a red stalk with pale leaves—with a green stalk with variegated leaves, &c. When first cultivated in this climate, the stem is wholly red and smooth; the petioles, ribs, and nerves of the leaves underneath purple; the spikes purple, much spreading, and a little nodding. They are highly beautiful, and make a gay appearance for the first two years; but after that time the seeds degenerate, and the plants possess but little beauty, which is the same with some others of this genus. It is a native of the East Indies.

*Propagation and Culture.* The propagation in most of these species is not effected without considerable trouble, as they require the aid of artificial heat in order to bring them forward in the greatest perfection. There are few, however, that may be raised in the open ground without the assistance of heat applied in the above manner.

The second and third species, being the most tender, demand much greater attention, and more artificial heat in producing them, than those of the fourth, fifth, and sixth kinds. And the first and last species are capable of being raised with still less heat than those of the above sorts, though not in the fullest perfection without a slight degree of it.

In all the different species the business is accomplished by sowing the seeds annually in the early part of the spring months, say about the last of March, or about the beginning of April, on beds of good earth, either over heat or in the natural ground, according to the

nature of the plants. The earlier the sowing can be performed, the better growth the plants will attain in the summer season.

In raising the second and third sorts in the greatest lustre and perfection, the aid of two or three different hot-beds is necessary, which should be covered with frames and glasses, so as to slide with ease and convenience. The first of these hot-beds should be small and made in the ordinary way, for the purpose of receiving the seed, and which may likewise serve for that of other annuals of the tender kind of similar growth. They should be earthed over the tops within the frames, to the depth of five or six inches, with good light dry mould. In this the seed should be sown in small shallow drills, and covered over very lightly with fine sifted mould; the glasses are then to be placed over them. In these situations the plants should be suffered to remain till they have attained the height of two or three inches, air being admitted in fine days, and the glasses covered with mats at night. When the plants are in this situation, a second hot-bed is to be prepared in the same manner, into which the young plants are to be pricked out to the distance of about four inches from each other, moderate waterings being occasionally given, and the plants well shaded from the sun until they have taken fresh root. Air should now be admitted more freely when the weather is fine, by raising one end of the glasses, and the night coverings be carefully applied. After the plants have remained in these beds a month or six weeks, and have become tolerably strong in their growth, so as to require more space, the final hot-beds should be made ready. These ought to be of much larger dimensions. When the frames are placed over them, earth to the depth of four or five inches should be laid over, and the plants, after being taken up with balls of earth about their roots, planted in pots of good sized dimensions, water being immediately applied in a sparing manner, and the pots plunged in the earth of the beds, the frames being raised occasionally as the plants advance in growth. The lights are to be constantly kept on, but air freely admitted by raising the ends daily, and water applied

every one or two days. Towards the end of June the plants will have attained nearly their full growth, when they may be placed out in the open air, where they are fully seen, when the weather is fine and settled, each of them being supported by a proper stick. In their after culture, they require to be kept constantly in the pots, and to have water freely applied almost every day when the season is hot.

All the other species are raised with much less trouble, but similar to those already described. They are of the most highly ornamental kind, although attended with some trouble in their culture, yet they well repay for the labor. They should have rather open exposures, and be distributed towards the fronts, especially those of the low growing kinds.

## N A T. O R D E R .

### *Ranunculaceæ.*

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ANEMONE HORTENSIS. BROAD-LEAVED GARDEN ANEMONE.

*Class XIII.* POLYANDRIA. *Order VI.* POLYGNIA.

*Gen Char.* *Involucre*, three cut-leaves, distant from the flower.

*Calyx* of five to fifteen petal-like, colored sepals. *Petals* wanting.

*Spe. Char.* *Leaves* ternate. *Segments* multifid. *Lobules*, linear, mucronated. *Leaves* of the involucre sessile, multifid, *Sepals* six, oval.

THE *stems* of this plant, when under a state of cultivation, rise from ten to fifteen inches in height. The *root-leaves* appear to be of two kinds: one very deeply gashed, so much that they have the appearance of being five-fingered, but are in reality three parted, the side-lobes being two-parted to the very base; all the lobes are narrow and sharp; the side ones deeply bifid, the middle ones trifid or quadrifid, the extreme ones sharply lanceolate—the other kind broad, deeply three-lobed, blunt, bluntly and shortly serrate at the tip, with an awn standing out; the *leaf* on the stem, or involucre, is ternate; the *leaflets* ovate, lanceolate; the *peduncle* is solitary and one-flowered; the *petals* three times three (in the natural flowers), long, elliptic, marked with lines, the outer ones subhirsute on the outside, white at the base with green lines; the *roots* consist of small white fibres, which are tuberos.

There are numerous varieties of this species, both with single and double flowers: the single and double Yellow; the Purple Star Anemone, darker and paler; Violet Purple; Purple-striped; Carnation; Gredeline, between a peach color and a violet; Cochenille, of a fine reddish violet or purple; Cardinal, of a rich crimson red; Blond-red, of a deeper, but not so lively a red; Crimson; Stamell, near unto a scarlet; Incarnadine, of a fine delayed red or flesh-color;





*Anemone hortensis.*



Spanish Incarnate, of a lively flesh color, shadowed with yellow; Blush, of a fair whitish red; Nutmegge, of a dark whitish color, striped with veins of a blush color; Monk's-gray, pale whitish, tending to a gray; Great Orange Tawnie; Lesser Orange Tawnie. Of the great double varieties there are, the great double Anemone of Constanti-nople, or Spanish Marigold; great double Orange Twarnie; double Anemone of Cyprus; double Persian Anemone; the common great double Variable Anemone; common double and variegated Scarlet; Red and Purple; variegated of these sorts. The best Star Anemones are said to come from Brittainy, where they raise yearly a great variety of sorts.

*Anemone coronaria.* Narrow-leaved Garden Anemone. In this species the flower-stems rise between the leaves immediately from the roots, from the number of one and two to four and five from the same root, to the height of from eight to twelve inches, having a leafy appendage or involucreum a little above the middle; the radical leaves are a little divided into numerous segments, which are subdivided into many narrow divisions. At the top each stem is adorned with a flower, which in the double sorts is large and very ornamental. It is a native of the Levant, where it grows single, but has been rendered double by cultivation.

The varieties are very numerous; in the single sorts, the Watchet or pale blue; the common Purple; the Scarlet, and many intermediate varieties. In the double kinds, the common Double Red and Scarlet; the Parti-colored Crimson; the Crimson Velvet; the great double Blush; the White; the Lesser Blush; the Purple; the Blue; the Rose-colored; the Carnation; the Purple Velvet of three colors; the double Brimstone; the Green, &c.

*Anemone nemorosa.* Wood-leaved Garden Anemone. In this species the root is perennial and creeping; the height of the whole plant is only from five to ten inches; the stem single, round and pubescent; bearing one leaf, and one flower; the leaf is doubly ternate, each part being petioled; the petiole is flat and broad, particu-

larly at the base; each part or leaf (for some consider it as three leaves), is trifid; each leaflet being gash-serrate, and hairy underneath, especially on the nerves; the peduncle is from one to two inches long, and is only a continuation of the stem, and springs from the centre of the leaf; the flower consists of six or seven oblong-ovate petals, sometimes ending bluntly, sometimes emarginate, and sometimes even gashed or lacerate. The usual color is white, but they are often tinged with purple on the outside, particularly the three outer ones; and sometimes they are entirely purple on both sides. The joint of the stem and the backs of the leaves are also apt to be tinged with red. The varieties are: with single flowers, with double flowers white, with single purple flowers, with double purple flowers, and with reddish purple flowers.

*Anemone apennina*. Mountain-blue Wood Anemone. In this species the root is perennial and tuberous; the stem round, purplish, and about a span high; the root-leaves on long petioles, ternate, and leaflets usually three-parted; the segments variously cut and divided, somewhat pointed, hairy on both sides; one three-parted leaf, or three leaves together on the stem, like the others, but on short, sheathing petioles. From the centre of these arises the peduncle, about six inches high, round, and purplish except near the flower, where it is green. The stem-leaves and peduncle are slightly hairy; the flowers are upright, of a pale blue color, and sweet smell; the petals oblong, from twelve to fifteen, and disposed in three rows. It flowers in April. The varieties are: with single blue flowers, with double blue flowers, with single violet-colored flowers, and with double violet-colored flowers.

*Anemone ranunculoides*. Yellow-wood Anemone. This plant differs from the one previously described, in its having a yellow corolla, and two petals standing alternately outer, and two inner, and one having one side within and the other side without the next petal—whereas that has three outer and three inner petals; it differs also in the peduncles being accompanied with two leaflets, the latter

of which is furnished with three at the base. It flowers a little earlier than the other. It sometimes has two flowers on a stem, but usually only one. The peduncles villose and short, so that the flower scarcely rises above the leaves; the petals are five, and roundish; the stamens about fifty. This plant grows wild in Sweden, &c.

*Propagation and Culture.* The varieties of these species are very common and graceful ornaments in gardens. Leaves finely or broadly dissected. Flowers purple, blue, violet, lilac, yellowish, white, or variegated, single or double; each of which forms, by itself, a highly beautiful garden ornament.

*Anemone hortensis* is a well known florist flower, valued for its hardy nature, and also, because it will flower at almost any season, according to the time the roots are kept out of the ground, and the season when they are planted. Many new varieties have been raised from seed, but few of them are named by florists, as in the case of Tulips and Pinks. The prevailing colors are red, white, and blue; and semi-double flowers are in nearly as much repute as double ones. A root which has remained in the ground two or three years will attain a great breadth. They are increased by dividing the roots. The soil preferred by the Anemone is a fresh loam, rather heavy than light. The usual time of planting is in October, covering the roots three inches; but to have earlier bloom, they may be planted in the beginning of September, and to have bloom every month in the year, plant every month. The finer sorts require protection from violent storms and excessive light and heat; but many varieties do exceedingly well in borders. A very severe winter will destroy the roots if the surface is not mulched, but the Anemone is considerable hardier than the garden Ranunculus.

In order to obtain new varieties, seeds should be saved from fine single or semi-double kinds, and sown in shallow pots or boxes filled with light, rich earth, in August, covering them a quarter of an inch with the same kind of earth; and when the plants rise, care should be taken to protect them from the frost. In the following season.

when their leaves begin to decay, they should be taken up and dried, and afterwards planted out in borders in the same manner as the old roots, and in the following summer they will produce flowers.

*Medical Properties and Uses.* This plant (*Ancemone hortensis*), agrees in properties with those of *Ancemone pratensis*. The whole order is more or less acrid, and most of the species somewhat poisonous, powerfully astringent, and are made use of in hypochondriasis, hernia, fevers, &c. For a more particular description, the reader is referred to page 60, Vol. I. of this work.

It may, however, be of interest to record some of the supposed virtues which have been ascribed to this plant by the ancients, and which is even more or less pursued to the present day. The plant, root and all, is taken, when dry, and burnt in the rooms of the sick, for various disorders, especially for pulmonary complaints, coughs, colds, &c. It is also, by many of the inhabitants of the Eastern countries, smoked in pipes in place of tobacco. It is said to be less intoxicating, and produces an exhilarating effect. The decoction is copiously used for bathing in cases of rheumatism and gout. An extract is prepared which possesses all the properties of the plant; the quantity of which may be taken from three to five grains at a dose; but should in all cases be used with caution and judgment.





*Cactus cereus.*



## N A T. O R D E R.

### *Cactea.*

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CACTUS CEREUS.

NIGHT-FLOWERING CACTUS.

*Class XVII.* ICOSANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx* superior, hairy, pointed, many cleft. *Segments* somewhat imbricate, cohering. *Petals* very numerous, inserted in four different sets of series—the interior ones of a lightish color, and more broad at the base and short—external ones more slender.

*Spe. Char.* *Leaves* fleshy, hairy, lanceolate. *Stem* round and ribbed, tufted in spots.

This curious species of the cactus tribe is found in the tropical regions of this country, inhabiting the borders of marshes and low lands. It grows from two to three feet in height, and somewhat creeping; the *roots* are long, fibrous, white, somewhat tuberous, and woody; also a considerable stringy; the *petals* are very numerous, and inserted in several different rows; the inner ones short and more broad at the base—the outer ones longer, lanceolate, pointed, more fleshy, and deeper tinged with a yellowish tint near their extremities; the *stamens* are indefinite, cohering somewhat with the sepals; the *filaments* are numerous, long, slender, and filiform; the *anthers* ovate, slender, and a little curved; the *stigmas* are quite numerous, and collected rather closely together, and somewhat clustered; the *flowers* are large, showy, spreading, placed at the end of the fleshy flowering stem, and when in full blossom produces an enchanting appearance. For external appearance examine plate.

Mexico, and the warmer regions of America, are the parts, seemingly, selected for the habitation of this family of plants. Many of the species, however, have found their way into more northern latitudes, but principally by the hand of cultivation. Still farther north it is placed as an ornament in the flower-garden and private nurseries. This, like all the other various species belonging to this curious family of plants, requires protection from the frosts and severe cold winds. It is sought for only as an ornament, to produce variety.

*Propagation and Culture.* This species requires a somewhat different mode of culture to produce luxuriant plants, to many of the other varieties. Most of the species require dry, exposed situations, where they can receive the full heat of the sun; but on the contrary, this plant seeks more shaded, desolate, and marshy districts, inhabiting the low lands, the borders of swamps and small streams. It can be easily increased either by parting the roots, or by slips or cuttings. No plant is more easily cultivated than the Cactus—the smallest shoot stuck into the earth will readily take root. The cuttings should be taken off early in the spring, and placed sufficiently under the surface of the earth to receive a constant moisture, which is from two to three inches, placed upright. If for the green-house or parlor ornaments, they should be placed in pots of middling size, and watered sufficiently to keep the earth continually moist. The earth should be formed of about one-half of vegetable mould, and the remainder of a fine gravelly soil.

*Medical Properties and Uses.* The whole family of these succulent plants do not contain any remarkable qualities as a medicine, yet some are used for medicinal purposes, but have never excited the attention of the medical profession. See Vol. iii. page 86.





*Broughtonia coccinea.*

## N A T. O R D E R.

*Orchideae.*

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BROUGHTONIA COCCINEA.

CRIMSON BROUGHTONIA.

*Class XX. GYNANDRIA. Order I. MONANDRIA.*

*Gen. Char.* *Calyx* consists of three sepals. *Petals* spreading. *Peduncle* one, erect, and nodding.

*Spe. Char.* *Anther-case* small. *Column* short, whitish.

THE *bulbs* of this *root* are very much clustered, roundish-ovate, often richly stained with brown, compressed, and bearing from the apex one or two *leaves*, which are linear-oblong, three to four inches high, and somewhat coriaceous; the *peduncles* also arise from the same place, eight to ten inches or more high, jointed and bracteated, and bearing a raceme of six to nine *flowers* at the summit, which are of a very rich crimson color; the *calyx* consists of three sepals; they are spreading, equal, equidistant, lanceolate; *petals* spreading, two lateral ones broadly ovate, acute, and slightly crisped; the lower one, or *labellum*, rotundate-cordate, obscurely two-lobed, waved, and delicately crenate at the margin; the base beneath running down into a very long adnate *spur* upon the scarlet germen; the *column* is quite short and whitish; the *anther-case* is extremely small and hemispherical; *pollen-masses*, two compressed pairs, with the caudicles folded down upon them.

This is undoubtedly one of the most rare plants in our country; consequently is but little known, even by the most experienced botanists. Its beauty and elegance when in blossom is very attractive, and is to be reckoned as one of the most splendid in that family of plants. Its medical properties have never been examined.

## N A T . O R D E R .

### *Liliaceæ.*

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FRITILLARIA IMPERIALIS.

CROWN IMPERIAL.

*Class VI.* HEXANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx* none. *Corolla* six-petaled, bell-shaped, and spreading at the base. *Petals* oblong, parallel. *Stamens* have six subulate filaments approximating to the style.

*Spe. Char.* *Anthers* quadrangular, oblong, erect. *Pistill* an oblong germ, three-cornered. *Stigma* triple, spreading blunt. *Style* trifid, with three stigmas. *Seeds* many, flat, in a double row.

This *plant* belongs to a genus comprising those of the bulbous-rooted kinds, and of a flowering nature. The *root* of this *plant* is large, round, scaly, bulbous, of a yellow color, and a strong, foxy odor; the *stalk* rises to the height of four or five feet; it is strong, succulent, and garnished two-thirds of the length on every side with long, narrow *leaves*, ending in points, which are smooth and entire; the upper part of the stalk is naked about a foot in length; the *flowers* come out all around the stalk upon short foot-stalks, which turn downward, each sustaining one large flower; above these rises a spreading tuft of green leaves, which are erect, and called the *coma*. It flowers in the beginning of April, and the seeds ripen in July.

The chief varieties are: those with yellow flowers; with large flowers; and with double flowers; but that which has two or three whorls of flowers, above all others, makes the most beautiful appearance, though it seldom produces its flowers after this manner the first year after removing.

*Fritillaria Meleagris.* Chequered Lily. In this species the root is a solid bulb or tuber, about the size of a hazle-nut, white or yellowish-white, roundish, compressed, divisible into several, and inclosed

by the withered, wrinkled bulb of the preceding year, as if in a case; the stem varies in height, sometimes six, and sometimes even eighteen inches high, and still advancing a considerable after flowering; it comes out from the side of the root, is simple, upright, round, smooth, glaucous, and very often of a purple color; the leaves from three to six, grass-like, distantly alternate, half embracing, round on the under, and hollow on the upper side, somewhat twisted and glaucous; the flower usually single, sometimes two, or even three on the top of the stem, large, pendulous, at first somewhat pyramidal, but afterwards bell-form, chequered with purple and white, or purple and greenish yellow. It is a native of southern countries of Europe, and flowers in April and May.

There are numerous varieties of this: the Common Purple, the Blood Red, the White, the Great Purple Red, the Double Blush, the Purple Yellow, the Chequered Yellow, the Great Yellow Italian, the Small Italian, the small Portugal Yellow, the Black, and the Spanish Black.

*Fritillaria pyrenaica.* Black Fritillary. This species has a double, fleshy bulbous root; the leaves are broader, and of a deeper green than in the first; the lower leaves are opposite, but those above alternate; the stem is from one to two feet high, terminated by two flowers of an obscure yellow color, and spreading more at the brim than those of the first, but turned downwards in the same manner. It flowers in the latter part of May, and is a native of France.

*Fritillaria Persica.* Persian Lily. This species has a large, round root; the stem rises about three feet high, the lower part closely garnished on every side with leaves, which are about three inches long and half an inch in breadth, of a grey color, and twisted obliquely; the flowers are in a loose spike at the top, forming a pyramid, shorter than the other sorts, spreading wider at the brim, and not bent down, of a dark purple color, appearing in May. They have not been known to produce seeds in this country.

There is a variety which has a much shorter stem and smaller leaves; the stem branches out at the top into several small peduncles, each sustaining one dark-colored flower. It is called Dwarf Persian Lily.

*Propagation and Culture.* The common mode of propagation in all these plants is by off-sets from the sides of their roots, separated every second or third year; and the proper time for this business is when their flower-stalks decay, taking the whole root up entirely, and separating them into distinct roots, then planting the smaller off-sets by themselves in nursery-beds, to remain a year or two to acquire a flowering state; and the larger roots, where they are to remain for flowering.

They are all, likewise, capable of being propagated by seed; but this is principally practiced for new varieties, and the process is tedious; the Fritillary and the Persian Lily being three years, and the Crown Imperial sometimes six or seven before they flower in perfection. The seeds may be sown in the beginning of autumn in large wide pots, or in boxes of similar width, filled with light mellow earth, each sort separate, covering them carefully with fine earth, about half an inch deep, placing the pots in such a situation as to have only the morning sun all summer, or especially during the hot, dry weather, and in the full sun in winter and spring; the plants will appear in the spring, which, after the first or second year's growth, when the leaves decay in summer, may be taken up, and the whole planted immediately in nursery-beds, in shallow drills, four inches apart, to remain till they flower.

*Medical Properties and Uses.* These plants are mostly valued for their flowers and the bulbs of the roots. They are roasted and eaten in Kamtschatka, where it is as commonly cultivated as the potatoe is with us. The roots of the *Fritillaria Imperialis*, are employed in stranguary and fevers, in many countries, and is valued for that purpose. This plant emits a most powerful scent in the evening immediately after sunset.







*Fumaria curva.*

## N A T. O R D E R .

### *Fumariacæ.*

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FUMARIA CAVA.

HOLLOW-ROOTED FUMITORY.

*Class XVII.* DIADELPHIA. *Order II.* HEXANDRIA.

*Gen. Char.* *Calyx* two-leaved. *Corolla* ringent. *Filaments* two, membranaceous, with three anthers on each.

*Spe. Char.* *Pericarpis* one-seeded, racemed. *Stem* diffuse.

This plant has a *root* about the size of a large hazle-nut with the shuck on; the *flower-stalk* rises in height about eight or nine inches; the *root-leaves* stand in pairs, triternate, gashed, smooth, slender, and with red petioles; the *scape* is simple, round, the length of the leaf, and rufous; the *racemes* are terminating and simple; the *flowers* pendulous, and of a dull purple-white color. It is a native of Virginia. Perennial, flowering in June and July.

The generic name is from *fumus*, smoke, in allusion to the disagreeable smell of the plant. The French, with the same meaning call it *Fumeterre*, whence our English Fumitory.

The economy of the fructification of this family of plants is remarkable. The stamens are in two parcels, the anthers of which are a little higher than the stigma; the two middle ones of these anthers are turned outwards, and do not appear capable of communicating their polen to the stigma: the four latteral ones are also naturally turned outwards, but by a twist of the filament their face is presented to the stigma. They are all held firmly together by the cohesion of the tops of the flowers, which, never unclosing, offer no apparent means of the polen being distributed so as to be shed upon the stigmatic surface. To remedy this inconvenience, the stigma is furnished with two blunt horns, one of which is inserted between and under the cells of the anthers of each parcel, so that without

any alteration of position on the part of either organ, the mere contraction of the valves of the anthers is sufficient to shed the pollen upon that spot where it is required to perform the office of fecundation. Their principal range is in the temperate latitudes of the northern hemisphere, where they inhabit thickets and waste places.

*Fumaria cucullaria.* Naked-stalked Fumitory. This plant is an annual; the stem upright, about a foot and a half high, round, and very smooth, sending out several branches at the top; the leaves smooth, branching, pale, divided like the common sort, but the leaflets larger and more obtuse; the flowers hang in loose panicles from the sides of the stem and at the extremity of the branches, of a purple color, with yellow chops or lips; the pods are tapering, narrow, an inch and a half long, and contains many small, black shining seeds. It flowers during the summer, and is a native of N. America.

*Fumaria lutea.* Yellow Fumitory. In this species the root strikes deep into the ground; the stems are many, succulent, diffused and six inches in height; the leaves on long, branching petioles, composed of many irregular leaflets, trifid at the top; peduncles axillary, naked, longer than the leaves, supporting eight or nine flowers of a bright yellow color, and hang in a loose spike; the leaves continue green all the year, and the flowers in succession from April to October. It is supposed to be a native of Barbary.

*Fumaria capnoides.* White-flowered Fumitory. This is an annual; the stem four cornered at the base; the leaves superdecompound, the terminating leaflets larger, and semitrid; the middle segment lobed; the petioles three cornered; the racemes naked; the pedicels about one-half the length of the corolla, and blackish at the tip. There is a succession of the flowers from May to October. It is a native of the south of Europe.

*Fumaria officinalis.* Official Fumitory. In this species the pods are globose, retuse; fructiferous pedicels erect, double the length of the bracteas; racemes rather loose; stem diffuse; leaves supra-decompound; lobes linear. This is an annual plant, native

of corn-fields and cultivated lands all over the United States—also quite common in most parts of Europe.

There are twelve other varieties of this highly interesting family, most of which are very ornamental, and others useful for the sustenance of life, both to man and beast. They should command the attention of Gardeners and Florests, as their culture might be made profitable.

*Propagation and Culture.* All the species are rather weedy-looking plants—hence their neglect of cultivation. The annual kinds should be sown in the open border, and treated as other hardy annuals. Some of the species are climbers, and highly deserving of notice; others do well, planted in rock-work. The variety of these flowers make a beautiful appearance in pleasure-grounds and gardens.

*Medical Properties and Uses.* The various species of *Fumaria* possess similar properties. In some their qualities are very limited, and in others they appear to be almost inert; hence rendering them of little importance in medicine, except *Fumaria officinalis*, which appears to be the most active, and is recommended for medical purposes. By the ancients this plant was named *Cymos*, from being thought to be peculiarly useful in dimness of sight, and other diseases of the eye. The leaves, which are the part of the plant directed for medicinal use by the Medical College, are extremely succulent, and have no remarkable smell, but a bitter and somewhat saline taste. The expressed juice and a decoction of the leaves in water, inspissated to the consistence of extracts, are very bitter and considerably saline; on standing for some time, throw up to the surface copious saline effervescences, in figure somewhat resembling the crystals of nitre, to the taste bitterish and somewhat pungent. A tincture of the dry leaves in rectified spirit, yields an inspissation, an extract less in quantity and bitterer in taste than either the watery extract or inspissated juice. Fumitory has been supposed by several Physicians of great authority, both ancient and modern, to be very

efficacious in opening obstructions and infractions of the viscera, particularly those of the hepatic system. It is also highly commended for its power of correcting a scorbutic and acrimonious state of the fluids; and has therefore been employed in various cutaneous diseases. When taken in rather large doses, it proves diuretic and laxative, especially the juice, which may be mixed with whey, and used as a common drink. Dr. Cullen classes this plant among the tonics. He says, "It is omitted in the London dispensatory, but retained in ours, and in every other that I know of. I have found it useful in many cases in which bitters are prescribed; but its remarkable virtues are those of clearing the skin of many disorders. For this it has been much commended; and I have myself experienced its good effects in many instances of cutaneous affections, which I would call *Lepra*. I have commonly used it by expressing the juice, and giving that in quantities of one to two ounces in the course of the day; but I find the virtues remain in the dried plant, so that they may be extracted by infusion or decoction in water." An extract can be thus prepared possessing all the properties of the fresh plant. In the writings of one of the most eminent Physicians of modern practice, he says: "The expressed juice, in doses of two ounces, taken twice a day in whey, is useful in hypochondriacal, scorbutic, and coctetic habits. It corrects acidity, and strengthens the stomach. Hoffman prefers it to all other medicines as a sweetener of the blood. There is no doubt of its utility in obstructions of the viscera, and the diseases arising from them. The celebrated Boerhaave frequently prescribed it in black jaundice and bilious colics. An infusion of the leaves was used as a cosmetic to remove freckles and clear the skin; and Dr. Cullen has experienced its good effects in many cutaneous disorders." The same Physician thought it useful as a tonic wherever bitter medicines are advisable.





*Argemone Mexicana.*



## N A T. O R D E R.

### *Papaveracea.*

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ARGEMONE MEXICANA.

MEXICAN ARGEMONE.

*Class XIII.* POLYANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Sepals* two or three, concave, mucronate. *Petals* four to six. *Stamens* indefinite. *Style* scarcely any. *Stigmas* four to six, opening. *Seeds* spherical, scrobiculate.

*Sp. Char.* *Leaves* profoundly repand-sinuated, spiny, blotched with white. *Flowers* solitary. *Calyx* smooth. *Capsules* prickly, three or four valved. *Petals* four to six. *Stigmas* four to five.

This is an annual plant, rising in height to two or three feet, with stems armed thickly with prickles; the *leaves* are sinuate or jagged, soft, shining, stem-clasping, the points of the jags ending in sharp, yellow spines; on the upper side there are milky veins, as in our Lady's Thistle; on the under, small prickles along the mid-rib and veins; the *flowers* are solitary at the ends of the stem and branches; the *corolla* is yellow, with from four to six petals; the *calyx* consists of from two to six prickly leaves; the *stigma* is capitate, small, and with five notches; *capsule* superior, having five or six ribs from top to bottom, and between the ribs armed with bristle-shaped spines; at the top is the flatted stigma; the *seeds* are very numerous, round, black, rough, with a compressed scar on the side; the *valves* of the *capsule* vary in number, as well as the petals, from four to six. This plant is a native of Mexico, and flowers in July and August. This plant is also found in Canada, and through all the States to Louisiana, all over Florida, West Indies, Brazils, Africa, St. Helena, East

Indies, Sandwich Islands, &c. It is called by the Spaniards in Mexico, *Figó del Inferno*, or Devil's Fig. In the West Indies it is called Yellow Thistle.

*Argemone albiflora*. White-flowered Mexican Poppy. This plant is but little known, being an inhabitant of the extreme southern part of Mexico, and as yet found in no other country. The leaves are sessile, feather-nerved; the petals are usually only three; flowers white, emitting a fragrant and pleasant odor. The natives of that country adorn their heads with these flowers at their celebrations and dances.

*Argemone ochrobeuca*. Cream-flowered Mexican Poppy. The leaves of this plant are profoundly sinuated or pinnatifid, glaucescent; nerves with prickly bristles; flowers solitary; stamens few; capsules oblong, deeply five or six furrowed, covered with somewhat reflexed prickles; stigmas five or six, distinct, spreading, and purple. It is a native of Mexico, but is found growing in Georgia and Carolina. There is a variety with pale yellow flowers; calyx of the three sepals; petals six, crenated; stem prickly.

*Argemone grandiflora*. Great-flowered Mexican Poppy. This plant has leaves sinuated, smooth, spring-toothed; the nerves are unarmed; the flowers paniced, polyandrous; the calyx smooth; capsules quadrangular, and almost unarmed; flowers large and white; stigmas four, with as many pale-blue pits; anthers yellow. These plants raised from seed will not flower till October; but when the roots have existed through the winter, they will flower early in the summer.

*Propagation and Culture*. Argemone is a genus of beautiful, hardy annuals, and should be sown in the open flower-borders about the end of March or the beginning of April; or the rarer kinds may be sown on a hot-bed, and afterwards planted out into the borders.

*Medical Properties and Uses*. Every one knows what narcotic properties are possessed by the Poppy, and this character prevails

generally through the order. Their seed is universally oily, and in nearly all the varieties in no degree narcotic. The oil obtained from the seeds of the *Papaver somniferum* is found to be perfectly wholesome, and is, in fact, consumed as food in many parts of Europe, in considerable quantities. The expressed oil is also employed extensively for the adulteration of Olive oil. At one time its use was prohibited in France, by decrees issued in obedience to popular clamor, but is now openly sold by all the druggists in that country. *Mecconopsis napalensis*, a nival plant, is described as being extensively poisonous, especially its roots. The *Sanguinaria canadensis*, or Puccoon, belongs to this order. This plant is well known to be emetic and purgative in large doses, and in smaller quantities stimulant, diaphoretic, and expectorant. See Vol. iii., page 121, for particulars. The seeds of *Argemone Mexicana* are used in the West Indies as a substitute for ipecacuanha; and the juice is considered by the native doctors of India as a valuable remedy in ophthalmia, dropped into the eye and over the tarsus; also as a good application to chancres. It is purgative and deobstruent. The Brazilians administer the juice of this plant (which they call *Cardo santo*) to persons or animals bitten by serpents—but, from the authority of those who have witnessed its operation, without much success. The narcotic principle of this plant is an alkaline substance called Morphia.

An oil is expressed from the seeds of this plant which is used in Mexico for shining wood. The yellow juice with which the plant abounds, when reduced to a consistence, is not distinguishable from gamboge. In very small doses it is probably of equal efficacy, given in dropsies, jaundice, and cutaneous eruptions. It is esteemed very detersive, and generally used in diseases of the eyes; but the infusion is looked upon as a sudorific and sesolutive. The seeds are said, by those who have used them, to be more powerful and a stronger narcotic than opium.

## N A T. O R D E R.

### *Ericacea.*

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AZALEA NUDIFLORA.

NAKED-FLOWERED AZALEA.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx* five-parted. *Corolla* short, campanulate, five-cleft. *Stamens* five, equal, shorter than the corolla. *Style* straight, inclosed. *Capsule* five-celled, with five cloven-pointed valves.

*Spe. Char.* *Leaves* opposite, small, elliptic, glabrous. *Flowers* pedicellate, small, red, rising in fascicles from the axils of the upper leaves. The *Seeds* many, and roundish.

This is a genus containing plants of the hardy, deciduous, flowering, shrubby kinds. This *plant*, in its native situation, often rises to the height of fifteen feet, but is seldom if ever more than half that height in other countries; it sends out several *stems* from the *roots*; the *leaves* are oblong, smooth, and alternate and petioled; the *peduncles* are axillary, long, and naked, supporting a cluster of red flowers, which are tuberos, swelling at their base like those of the hyacinth, and contracted at their neck; they are divided at the top into five equal segments, which spread open; the five *stamens* and *styles* are much longer than the petals, and stand erect. It is a native of Virginia, but inhabits most of the New-England States, where it seeks rough and rocky places.

There are varieties of this plant with scarlet flowers, with pale-red flowers, with early white flowers, with red and white flowers, and with variegated flowers.

*Azalea viscosa.* Viscid-flowered Azalea. This species is a low shrub, rising with several slender stems to the height of nearly four



*Azalea nudiflora.*



fect; the leaves appear in clusters at the ends of the shoots without order; they are spear-shaped and narrow at their base; their edges are set with very short teeth, which are rough; the flowers come forth in clusters between the leaves at the extremities of the branches; they are white, with a mixture of dirty yellow on the outside; the tube is about an inch long, and at top they are pretty deeply cut into five segments; the two upper are reflex, the two side ones bent inward, and the lower one is turned downward; the stamens are a little longer than the petals, and support oblong, saffron-colored anthers; the style is much longer than the stamens, and is covered by an obtuse stigma; the flowers have somewhat the appearance of those of Honeysuckle, and are very agreeably scented, much more so than the one previous. The flowers appear about the middle of July. It is a native of North America. It is considerably cultivated in England, but the seeds will not ripen. This plant has varieties with white-striped flowers, with narrow petalled flowers, and with clustered flowers.

*Propagation and Culture.* These plants may be raised without much difficulty in rather moist soils where the situation is shady. In England, where these plants are most extensively cultivated, they are produced from offsets from the roots, or layers from the young shoots, as they will not produce seed in that country. The best season for either of these methods is the early part of autumn, when they should be set out where they are to grow, or be planted in rows after the nursery manner. The plants should have some protection about their roots during the winter season, by covering the ground with old tan, or some other substance of a similar nature. In this country, where the seed can easily be procured, plants may be raised by sowing them either in pots or on warm borders; in the former method, forcing their growth by plunging them in mild hot beds.

*Medical Properties and Uses.* The general qualities of these plants are astringent and diuretic, and may be used as substitutes for other remedies.

## N A T. O R D E R .

### *Myrtaceæ.*

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JAMBOSA VULGARIS.

ROSE APPLE.

*Class VII.* ICOSANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Tube* of the *Calyx* turbinate. *Lobes* roundish. *Petals* four. *Stamens* numerous. *Style* filiform. *Stigma* simple, acute. *Cotyledons* fleshy, thick. *Flowers* large, bractless.

*Spe. Char.* *Racemes* cymose, terminal. *Leaves* narrow-lanceolate, six or seven inches long. *Fruit* ovate, globose.

This is an extraordinary evergreen *tree*, from twenty to thirty, and sometimes even forty feet high, with a bushy but not close head of shining, fine dark-green foliage; quite smooth in all its parts; *bark* of the stem and branches cracked, but clean and even, and of a reddish brown; the *stem* rarely exceeds nine inches or a foot in diameter; *branches* not much spreading, densely leafy towards the ends; the ultimate ones drooping from the weight of the fruit and flowers; all round, smooth and even; *leaves* opposite, lanceolate, six or eight inches long, and one and a half or two inches broad, attenuated at the base, gradually acuminate at the apex, coriaceous, firm, and stiffish, rather faintly veined and punctate, dark shining green above—paler and opaque beneath, and the younger ones and shoots of a bright cinnamon red; *petioles* short, stout, channelled, and not more than one-fourth of an inch long; *flowers* large, handsome, very pale yellowish or greenish white, with a slight fragrance of Primroses or Cowslips; generally in terminal, small, loose, short cymes or bunches; occasionally lateral from the axils towards the ends of the branches; *peduncles* either simple, bifid or trifid—usually the latter,







*Simbosa vulgaris.*

placed cross-ways, and at nearly right or wide angles with the branch; very rarely more than once compound; the *pedicles* divaricate, stout, round, smooth and shining, and pointed at the top; *flower-buds* inversely pear-shaped, hard, firm, purplish-red below, the imbricate sepals green; *sepals* four, patent concave, transversely oval, permanent as a crown to the fruit, and then erect and connivent; *petals* greenish or white, much larger than the sepals, round, very concave, patent, deciduous, with very numerous stamens, which are curiously subspirally involute, as if in four sets, in the buds; *filaments* long, the outer ones an inch and a half, white, with a very pale primrose or greenish yellow tinge, becoming deeper by age; the innermost gradually shorter, seated on a raised, prominent, suboctagonal ring at the base of the sepals; *anthers* very small, oblong, and of a yellowish white; *style* longer than the stamens, white subulate, simple, persistent. A naked, hollow, cup-shaped square, or four-sided space surrounds its base, within the raised stamiferous ring; but I have never seen the filaments exposing this (as figured by some botanists,) unless when part of them had fallen off. On the contrary, they quite conceal the whole centre of the flower, incurving rather, and becoming denser towards the style. They retain something of a spiral tendency, acquired in the bud, for sometime after full expansion. *Ovary* uniformly two celled, containing numerous angular, narrow-oblong, ovules, attached by one end to a placenta, prominent into each cell from the central axis or dissepiment, *fruit* a subglobose, one-celled, rather dry, smooth, drape-like berry, approaching always more or less to pear-shaped, about an inch in diameter, crowned by the persistent calyx, and umbilicate at the top, of a delicate pale ochre-yellow, suffused more or less on one side with rose color, and with a very powerful smell and taste of rose-water; the flesh about two lines thick, sweet, but somewhat dry and mealy, or rather grumose; a large cavity inside of one cell, with merely traces of the obliterated dissepiment, containing from one to three large brown *seeds*, these are loose and rattle within the cavity.

When there is only one seed it is about the size of a marble, subglobose, but a little flattened on one side. When there are two or three, they are irregularly flattened by compression, and smaller; one, however, being always the largest; the *testa* brown, crustaceous, easily shelling off; *cotyledons* from two to four, or even five to six, usually two or three, large, bright green, punctate, of very irregular, unequal shape and size; the external surface rounded, inner angular.

The *Rose Apple*, a native of the East Indies, is one of the most common garden trees of Maderia; but there is scarcely another that combines so eminently the beauties of flower, fruit, and foliage. The delicate white tassal-like bunches of flowers, contrasting with the thick, dark foliage, enliven the trees from February to July or August, when the fruit is principally in season. The fullest bloom, however, is in March or April, and just after this the trees are beautifully enriched by the fine, cinnamon-colored or reddish young leaves or shoots. Nothing can exceed the loveliness and delicate appearance of the fruit—its rich clusters half hidden by the dark, thick tufts of foliage which clothe the outer branches. But though one or two may be eaten with some relish, the over-powering perfume and taste of rose-water, together with the want of juice or dryness, renders it generally unpalatable; and it is entirely excluded, except to satisfy occasional curiosity, from the table or desert. It is produced in great abundance and profusion, but used for no other purpose than sometimes to feed the pigs which eat it greedily.

This tree, by its thick, evergreen foliage, is admirably adapted for a screen to buildings, or for shelter. It is also of rapid growth, and extremely tractable, bearing lopping well, or heading down to any height, and produces its flowers at all ages or sizes, whether as a tree or a bush. The name is from the Indian *Jamboo*, or *Schamber*.

*Jambosa samarangensis*. Samarang Rose Apple. This tree grows from twenty to twenty-five feet in height; racemes loose, terminal, or axillary, shorter than the leaves; branches usually three-flow-

ered ; leaves elliptic-oblong, bluntish, rounded at the base, or nearly cordate, glabrous ; flowers rose-colored or whitish ; leaves acutish, greyish-green beneath, perhaps sufficiently distinct from the following. It is a native of Java.

*Jambosa venosa.* Veiny-leaved Rose Apple. This tree is about twenty feet high ; racemes simple, terminal, or sub-corymbose, few-flowered ; leaves elliptic, coriaceous, opaque, glabrous on both surfaces, and reticulately veined ; branches angular ; leaves on short petioles, about four inches long, and two to two and half broad ; fruit is said to be one seeded. There are several varieties differing in the size and color of the fruit. It is not so much esteemed as the Malay-apple ; it is, however, nevertheless excellent, resembling in appearance and flavor a Brussels apricot. To grow the fruit in this country it requires a hot and moist atmosphere. Native of Madagascar.

*Jambosa macrophylla.* Long-leaved Rose Apple. This tree rises from twenty to thirty feet high ; the cymes lateral fasciated ; leaves ovate-lanceolate, obtuse at the base, acuminate at the apex ; one foot or more long and five broad ; peduncles five-flowered, and about three inches long ; flowers white. It is a native of the East Indies.

*Jambosa purpurascens.* Purple-flowered Rose Apple. This tree, also, rises from twenty to thirty feet high ; cymes lateral, in fascicles ; leaves elliptic, hardy, acute at the base and apex ; flowers purple. This is a native of the Island of Trinidad, where it is probably cultivated as the other species.

*Jambosa malaccensis.* Malay Apple. This tree varies much in its height, being from twenty to forty feet ; cymes lateral short ; leaves ovate-lanceolate, attenuated at both ends, about a foot long, and shining ; fruit pear-shaped ; flowers white. This tree resembles the jansorade, but has broader leaves. The fruit is ovate, an inch and a half in diameter, fleshy, and sweet-scented like the rose, agreeable to the taste, smell, and sight, and esteemed wholesome. It

is a native of the East Indies, and is common in most of the Islands in the South Sea.

*Jambosa amplexicaulis.* Stem-clasping-leaved Rose Apple. This tree generally attains the height of twenty or thirty feet; racemes few-flowered, terminal—lower ones axillary, solitary; leaves membranous, oblong, lanceolate, obtuse, glabrous, undulated, rather cordate at the base; fruit very fine, purple, and about the size of a small apple; calyx fleshy, bluntly four-cleft. It is a native of Sumatra.

*Jambosa australis.* Southern Rose Apple. This tree rises about twenty feet in height; peduncles axillary, three-flowered, solitary—terminal ones rather solitary, paniced; leaves elliptic-lanceolate, acute; flowers white. It is a native of New Holland, where it is cultivated as an ornament by the road sides and pleasure grounds.

*Jambosa formosa.* Beautiful Rose Apple. This species rises from twenty-five to thirty feet in height; leaves elliptic-oblong, rather acuminate, sessile, cordate, stem-clasping; racemes axillary, rising after the leaves have fallen, sessile, short; pedicels clavate-elongated; flowers smooth; stamens very long; berry globose, pendulous; calyx and petals reddish; filaments white. Native of the East Indies, at Moalmyne, and at the bottoms of the rocks on the banks of the Athan.

*Jambosa laurifolia.* Laurel-leaved Rose Apple. This tree is rather uniform in height with the other species, being from twenty to thirty feet; cymes axillary, opposite, three to five-flowered; lower pedicels opposite, elongated; flowers three, terminal, sessile on the tops of the peduncles; leaves elliptic, bluntish at both ends; flowers white. Native of the East Indies.

*Jambosa hypericifolia.* St. John's-wort-leaved Rose Apple. This species is a shrub; pedicels terminal, solitary, one-flowered shorter than the leaves; leaves sessile, oblong-lanceolate, acuminate, rather cordate at the base, glabrous; calyx four cleft, rather attenuated at base. It is a native of Java, on Mount Salak.

*Jambosa ovariensis.* Waree Rose Apple. This is a small tree, about twenty feet high; cymes paniced, terminal; branches opposite, three-flowered, especially at the apex; calyxes turbinate, shortly and bluntly four-lobed; leaves oval, acuminate, coriaceous, glabrous, surty beneath; the veins of the leaves are parallel in the figure and rather prominent; they are three inches long and about one and a half broad; the stamens very numerous, exerted; branches furnished with super-axillary, opposite tubercles; fruit unknown, but in the form of the calyx this plant agrees with *cam-bosa*. Native of the west coast of Africa, in the Kingdom of Waree.

*Jambosa obtusissima.* Obtused-leaved Rose Apple. This tree rises about twenty-five feet in height; panicles corymbose, terminal or lateral; branches three-flowered; calyx four-cleft, attenuated at the base; leaves almost sessile, oblong, obtuse, somewhat cordate at the base, coriaceous and glabrous. It is a native of Java.

*Jambosa densiflora.* Dense-flowered Rose Apple. This species rises about twenty feet in height; corymbs terminal, coarctate; pedicles three-flowered; calyx four-cleft, very much attenuated at the base; leaves oblong-lanceolate, coriaceous, glabrous, acuminate at both ends. Native by the sea-side, in the Island of Nusa-Kambanga, in the East Indies, where it is called by the inhabitants *Jambon*.

*Jambosa glabrata.* Smooth Rose Apple. This is rather a dwarfish tree; peduncles filiform, one to three-flowered, glabrous and shorter than the leaves; ovarium clavate; calyx four-cleft; leaves oblong-lanceolate, bluntly acuminate, finely veined, quite glabrous; calyx attenuated at the base. This dwarfish and shrubby looking tree is a native of Java on the mountains.

*Propagation and Culture.* This is a genus of fine trees, with large foliage, beautiful flowers, and eatable fruit. They thrive well in a mixture of sand, loam, and peat; and flower freely when the plants are of good size. Ripened cuttings strike root readily in sand under a hand-glass.

## N A T. O R D E R.

### *Orchideae.*

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CYPRIPEDIUM INSIGNE.

LARGE LADIES' SLIPPER.

*Class XX. GYNANDRIA. Order I. MONANDRIA.*

*Gen. Char.* *Lip* ventricose, inflated, saccate. *Petals* four, the under one bifid. *Column* terminating in a petaloid lobe.

*Spe. Char.* *Scape* leafless, one-flowered. *Leaves* radical, two, oblong, obtuse. *Lobe* of the style roundish-rhomboidal, acuminate, deflexed. *Petals* lanceolate. *Lip* shorter than the petals, cleft before.

OF the most beautiful genus *Cypripedium*, no species, perhaps, in the world, excels the one here figured, whether in size and beauty of its blossoms, or the color and markings of its floral coverings. *Stems* none; *leaves* radical, few, and equitant at the base, broadly linear, coriaceous, distichous, keeled at the back, glabrous, and of a yellow green color; *Scape* terete, downy, curved at the extremity, and there bearing an ovate-oblong, green, glabrous, remarkably compressed, striated *spathe*; *flowers* solitary, very large, three to four inches across; the whole richly spotted with white; the two inner and *lateral segments* spreading, oblong, broader towards the extremity, yellow green, and pale at the base; *lip* large, saccate, rich greenish-brown without, and yellow within; *column of fructification* short, terminated by a large, obversely cordate, yellow, slightly convex lobe, glandular below; beset with minute red hairs above; beneath this at the base, are two short, *lateral processes* or filaments, to the side of each is attached a single, sessile, two-leaved, orange-yellow *anther*; its lobes rather unequal.

*Medical Properties and Uses.* See pages 102 and 103, Vol. II.; and pages 68 and 69, Vol. III. of this work.





*Cypripedium insigne!*



## N A T. O R D E R.

### *Euphorbiaceæ.*

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EUPHORBIA ATRO-PURPUREA. BLOOD-FLOWERED SPURGE.

*Class* XXXI. MONOECIA. *Order* I. MONANDRIA.

*Gen. Char.* *Involucrum* resembling a calyx, ventricose, the alternate segments petaloid. *Filaments* twelve or more, simple, each consisting of an anther. *Calyx* and *Corolla* very rarely present. *Styles* three, two-cleft. *Capsules* three-lobed.

*Spe. Char.* *Stem* simple, erect, smooth, round. *Leaves* oblong-cunate, obtuse, umbel-form. *Capsules* smooth.

THE *stem* in this plant is between three and four feet in height, frutescent, rather larger than the human finger, dichotomously branched above, bare of foliage (but copiously marked with the scars of the fallen leaves,) except at the summit of the branches—there the *leaves* are numerous, from three to five inches long, lanceolate, tapering at the base, obtuse, pale glaucous-green, patent or drooping, nerves obsolete; *umbel* of from eight to ten rays, each of which is quadrifid or four rayed, these lesser rays having each an oblong, colored *bractea* at its base, forming a four leaved involucre; two other *bracteas* immediately surround the proper involucre—these are large, deep, red-purple or blood-colored, broadly oblong, obtuse, combined at the base; *proper involucre* small, cup-shaped, red, with four retuse, fleshy, yellow-green *glands* at the margin; *male flowers*, about four are excluded at the same time; *cells* of the *anthers* globose, distinct; *female flowers*, *germen*, globose, shortly pedicellate; *style* with three bifid segments.

This extensive order, (according to Dr. Lindley,) which does not probably contain less than 1500 species, either described or undescribed, exists in the greatest profusion and abundance in equinoctial America, where about three-eighths of the whole number have been found, sometimes in the form of large trees, frequently of bushes, still more usually of diminutive weeds, and occasionally of deformed, leafless succulent plants, resembling the Cacti in their port, but differing from them in every other particular. In the Western world they gradually diminish as they recede from the Equator, so that not above fifty species are known in North America, of which a very small number reach as far as Canada. In the old world the known tropical proportion is much smaller, arising probably from the species of India and equinoctial Africa not having been described with the same care as those of America—not above an eighth having been found in tropical Africa, including the Islands, and a sixth being perhaps about the proportion in India. A good many species inhabit the Cape, where they generally assume a succulent habit; and there are almost one hundred and twenty species in Europe—including the basin of the Mediterranean—of these, sixteen only are found in Great Britain, and seven in Sweden.

This genus, which is so extensive, was named in honor of Euphorbus, Physician to Juba, King of Mauritania. The different kinds of which are so remarkable for the copious acrid, milky juice, in some constituting caoutchouc. No less than two hundred and nine species are known to possess this property, and numerous undescribed ones are known to exist in our Herbarium. Many of them recommend themselves to cultivation by the strangeness of their forms, especially among the more succulent kinds—a few by the rich colors, not of the flowers indeed, but of the bracteas and floral leaves. The one in figure, though it cannot vie with the *Euphorbia splendens* or *Euphorbia punicea*, both of which bear such rich scarlet bracteas, is yet well deserving a place in every green-house, from the deep blood-color of its bracteas and floral leaves, which present a

strong contrast to the pale glaucous hue of the rest of the foliage. This plant is a native of Teneriffe, where it was discovered by Mr. Broussonet. The species most worthy of cultivation are the following, although there are, perhaps, many others equally deserving, yet they have not been brought into common use.

*Euphorbia antiquorum.* Triangular Spurge. This has a triangular, compressed, succulent stem, rising to the height of eight or ten feet, and sending out many irregular, spreading, twisting branches, for the most part three-cornered, but some having two, and others four angles; at their extremities are a few short, roundish leaves, which soon fall off—and near these come out occasionally a few flowers, which have five thick, whitish petals, with a large three-cornered germ in the centre—the flowers soon dropping off without producing seeds. It grows naturally in the East Indies.

It has generally been taken for the true Euphorbium; but Martyn observes that it is from the next species following that the drug now imported under that name is taken.

There is a variety with a naked, three-cornered, compressed stalk, sending out a great number of erect branches, which are also generally three-cornered, but sometimes four-cornered, armed with short, crooked spines, having no leaves. The plants have not produced flowers here. This is also a native of India.

*Euphorbia Canariensis.* Canary Spurge. This species, in its native country, grows to the height of twenty feet or more, but in this climate it is rarely seen more than six or seven; the stem is very thick, green and succulent, having four or five large angles, closely armed with black looking and crooked spines, which come out by pairs at every indenture; it sends out from every side large succulent branches of the same form, which extend to the distance of two or three feet, then turning their ends upwards, so that the plants when well grown have some resemblance to a chandelier; they have no leaves, but are closely armed with black spines, like the stem; at the ends of the branches the flowers make their appear-

ance, which are shaped like those of the second species. It is a native of the Canary Islands, and flowers in March and April.

*Euphorbia officinarum.* Official Spurge. This species puts out many stalks just above the surface, which are thick, succulent, and roundish, having eight or ten angles whilst they are young, but as they grow old they lose their angles and become round—the branches grow distorted and irregular, first horizontal, but afterwards turning upwards; the angles are armed with small, crooked spines, and on the upper part of the branches appear the flowers, which is in June and July—they are small, and of a greenish-white color. It is a native of Africa.

*Euphorbia caput-medusæ.* Medusa's-head Spurge. This species has thick, roundish, succulent stalks, which are scaly; they send out many branches from their sides of the same form, which are twisted, and run one over another, so as to appear like a nest of serpents, whence it has the appellation of Medusa's-head. At the end of these are narrow, thick, succulent leaves, which drop off; and round the upper part of them the flowers appear—these are white, and of the same form with those of the other sorts, but larger; and frequently succeeded by fruit.

There is a variety termed *Little Medusa's-head*, which has a thick, short stalk, seldom more than ten or twelve inches high, from which spring out a great number of slender, trailing branches, about a foot in length, intermixing, and having the same appearance with the other, but smaller and much shorter; the ends beset with narrow leaves, between which the white flowers come out and appear. It is a native of Africa.

*Euphorbia tithymaloïdes.* Myrtle-leaved Spurge. This is a wand-like, suberect plant, six feet high, the whole of it abounding in a white, bitterish milky juice; the stems numerous, round, smooth, weak, very pliant, branched, the size of a man's thumb—the elder ones ash-colored, and the younger green; the leaves, some obtuse, others acute, coriaceous, quite entire, petioled, deep green; two or

three inches long, deciduous except on the branches, the middle dorsal nerve and the petiole augmented by a longitudinal lamella more or less waved and conspicuous, at first frequently tomentose on both sides, but with the upper surface very even, and the edges extremely waved; afterwards both sides always become flat and smooth; the peduncles one-flowered, short, aggregate about the extremities of the branchlets, coming out principally when the plant is without leaves; the flowers are void of scent, of a beautiful scarlet color. There are varieties with laurel leaves, and variegated leaves. It is a native of Caribbee Islands.

*Euphorbia heptagona.* Seven-angled Spurge. This sort has a roundish, upright, succulent stem, about three feet high, putting out several branches on the side, of the same form; the angles are armed with long, single, black spines; at the ends of the branches the small flowers make their appearance, which are sometimes succeeded by small fruit. It is a native of the Cape.

*Euphorbia mammellaris.* Warty-angled Spurge. This plant has also roundish stems, swelling out in the middle, and having knobbed angles, between which come out long, straight spines; these stems are two feet high, and put a few branches from their sides of the same form, at the ends of which flowers are produced, sitting close upon the angles—they are small, and of a yellowish-green color. It differs from the preceding in having the angles doubled and swelling a little, and the spines single between the tubercles, which are placed longitudinally. It is a native of the Cape, flowering in July and August.

*Euphorbia lathyris.* Caper Spurge. This species has an upright, succulent stem, from three to four feet high, with oblong, smooth, sessile leaves; the upper part dichotomous, and an umbel comes out from each division—that in the first being the largest, and those in the upper the smallest. The flowers are of a greenish-yellow color, appearing in June and July, and are soon after succeeded by fruit. It is a native of France.

*Propagation and Culture.* All these plants may be raised by setting cuttings, made at a joint, five or six inches long, after being rubbed in sand and laid on the shelf a few days to have the wounds healed over, in the summer about June, in small pots filled with light, dry, sandy mould, with some rubbish at the bottoms, such as that constituted of a fourth part of screened lime rubbish, the same proportion of sea-sand, and one-half of light, fresh, vegetable earth, well mixed and blended together by frequent turning over, plunging them in the bark hot-bed, giving suitable shade in the hot sunny weather, and a little water once or twice a week, as there may be occasion. When the plants have stricken root, they should have air admitted quite freely while in that situation, or be removed into the stove to be hardened before winter.

They must afterwards be allowed larger pots once a year as they advance in growth, and be frequently refreshed with water in the summer season, but only very sparingly in the winter. Most of these sorts are capable of being kept on the shelves of hot-houses, and some of them, such as the sixth, seventh, and eighth sorts, in a dry, airy green-house, or glass-case, during the winter season, care being taken to guard them against the frost, and in the summer they may be set out in the open air.

The fifth species stands in need of support to prevent the weight of the branches forcing it upon the pots; and by such management they will rise four or five feet in height, producing numerous side branches. The ninth sort requires little or no care when once introduced, except keeping the young plants clean, as it will be continued by its scattering the seeds. The whole of these varieties, except the last, afford variety in hot and green-house collections, and that in the borders of pleasure-grounds.

The properties of *Euphorbiacæ* are so important, that I do not think I should fulfil the object of this work, if I did not, in addition to the foregoing general view of the order, add a detail list of the qualities of the most important species named by writers—some o.



which have already been described in various parts of this work, and others scarcely known to the majority of the medical profession.

*Medical Properties and Uses* of various plants in this order. The excellent monograph of M. Adrien de Jussien contains the best information that exists upon this subject, and I accordingly avail myself of it, adding such additional facts as have since been discovered. The general property is that of excitement, which varies greatly in degree, and consequently in effect. This principle resides chiefly in the milky secretion of the order, and is most powerful in proportion as that secretion is abundant. The smell and taste of a few are aromatic; but in the greater part the former is strong and nauseous, the latter acrid and pungent. The hairs of some species are stinging. The bark of various species of *Croton* is aromatic, as *Cascarilla*; and the flowers of some, such as *Cactarus spiciflorus*, give a tone to the stomach. Many of them act upon the kidneys, as several species of *Phyllanthus*, the leaves of *Mercurialis annua*, and the root of *Ricinus communis*. The root of various *Euphorbias*, the juice of *Commia*, *Anala*, *Mercurialis perennis*, and others are emetic; and the leaves of *Bæ* and *Mercurialis*, the juice of *Euphorbia*, *Commia*, and *Hura*, the seeds of *Ricinus*, *Croton tiglium*, &c., are purgatives. Many of them are also dangerous, even in small doses, and so fatal in some cases that no practitioner would dare to prescribe them—as, for example, *Manchineel*. In fact, there is a gradual and insensible transition in this order, from mere stimulants to the most dangerous poisons. The latter have usually an acrid character; but some of them are also narcotic, as those of *Phyllanthuses*, the leaves of which are thrown into the water to intoxicate fish. Whatever the stimulating principle of *Euphorbiacæ* may be, it seems to be of a very volatile nature, because application of heat is sufficient to dissipate it. Thus the root of the *Jathropha*, *Manihot*, or *Cassava*, which when raw, is one of the most violent of poisons, becomes a wholesome, nutritious article of food when roasted. In the seeds the albumen is harmless and eatable, but the embryo itself is acrid and

dangerous. Independently of this volatile principle, there are two others belonging to the order which require to be noticed. The first of these is Caoutchouc, the most innocuous of all substances, produced by that most poisonous of all families, which may be almost said to have given a new arm to surgery, and which has become an indispensable necessary of life; it exists in *Artocurpeæ* and elsewhere, but is chiefly the produce of species of *Euphorbiaceæ*. The other is the preparation called Turnsol, which, although chiefly obtained from *Crozophora tinctoriu*, is to be procured equally abundantly from many other plants of the order.

*Acalypha Cupameni*, an Indian herb, has a root which, bruised in hot water, is cathartic; a decoction of its leaves is also laxative. The nut of *Aleurites ambinix* is eatable and aphrodisiac, but rather indigestible. The nuts of another kind are eaten in Java and the Moluccas; but they are intoxicating unless they are roasted. The *Anda*, of Brazil, is famous for the purgative qualities of its seeds, which are fully as powerful as those of the *Palma Christi*. The Brazilians make use of them in cases of indigestion, in liver complaints, the jaundice, and dropsy. The rind, roasted on the fire, passes as a certain remedy for diarrhœa brought on by a cold. According to Maregraaf, the fresh rind steeped in water communicates to it a narcotic property which is sufficient to stupify fish. The seeds are either eaten raw, or are prepared as an electuary. They yield an oil, which is said, by M. Auguste St. Hilaire, to be drying and excellent for painting—in short, much better than nut oil. The bark of *Briedelia spinosa*, an Indian herb, is, according to Roxburgh, a powerful astringent. The leaves are greedily eaten by cattle, which, by their means, free themselves of intestinal worms. The leaves of common *Box* are sudorific and purgative. According to Hanway, camels eat them in Persia, but they die in consequence. The flowers of *Caturus spiciflorus* are spoken of as a specific in diarrhœa, either taken in decoction or in conserve. The succulent fruit of *Cicca disticha* and *raccmosa* is sub-acid, cooling and whole-

some. Its leaves are sudorific, and its seeds cathartic. The capsules of *Cluytia collina* are poisonous, according to Roxburgh. The root and bark of *Codicæum variegatum* are acid, and excite a burning sensation in the mouth if chewed; but the leaves are sweet and cooling. The juice of *Commia cochinchinensis* is white, tenacious, emetic, purgative, and deobstruent. Cautiously administered it is a good medicine in obstinate dropsy and obstructions. The *Quina Blanca* of Vera Cruz is produced by the *Croton Eluteria* of Swartz, and is probably the *Cascarilla* of Europe. The drastic oil of Tiglium is expressed from the seeds of *Croton Tiglium*, formerly known in Europe under the name of *Grana molucca*. It is said, by Dr. Ainslie, to have proved in a singular manner emmenagogue, (ex. vol. i. page 86.) A decoction of *Croton perdicipes*, called *Pe de Perdis*, *Alcamphora*, and *Cocallera*, in different provinces of Brazil, is much esteemed as a cure for syphilis, and as a useful diuretic. The root of another species, called *Velame do Campo*, *Croton campestris*, has a purgative root, also employed against syphilitic disorders. The leaves of the species *Croton gratissimum* are so fragrant as to be used by the Koras of the Cape of Good Hope as a perfume. *Crozophora tinctora* yields the preparation called Turnsol—the plant itself is acrid, emetic, and drastic. An abundance of useful oil is obtained from two species of *Elæococca*—it is, however, only fit for burning and painting, on account of its acidity. Six sorts of European *Euphorbias* are named by Deslongchamps as fit substitutes for *Ipecacuanha*, the best of which he states to be *Euphorbia gerardiana*, the powdered root of which vomits easily in doses of eighteen to twenty grains. The root of *Euphorbia ipecacuanha* is said, by Barton, to be equal to the true *Ipecacuanha*, and in some respects superior. It is not unpleasant either in taste or smell. Various species of fleshy *Euphorbia*, especially the *Euphorbia antiquum* and *canariensis*, produce the drug *Euphorbium* of the shops, which is the inspissated milky juice of such plants. In India it is mixed with the oil expressed from the seeds of *Sesamum orientale*, and

used externally in rheumatic affections, and internally in cases of obstinate constipation. It is but little used in this country or Europe. Orfila places it among his poisons. *Euphorbia papillosa* is administered in Brazil as a purgative; but is apt, if given in too strong a dose, to cause dangerous superpurgations. The juice of the leaves of *Euphorbia nereifolia* is prescribed by the native practitioners of India, internally as a purge and deobstruent, and externally, mixed with *Margosa* oil, in such cases of contracted limbs as are induced by ill-treated rheumatic affections. The leaves have, no doubt, a diuretic quality. The leaves and seeds of *Euphorbia thymifolia* are given by the Tamool doctors of India in worm cases, and in certain bowel affections of children. The same persons give the fresh juice of *Euphorbia pilulifera* in aphthous affections. The fresh, acrid juice of *Euphorbia Tirucalli* is used in India as a vesicatory. The Ethiopians are said, by Virey, to form a mortal poison for their arrows from the juice of *Euphorbia heptagona*. The juice of *Excæcaria Agallocha*, and even its smoke when burnt, affects the eyes with intolerable pain, as has been experienced occasionally by sailors sent ashore to cut fuel, who, according to accredited authority, having accidentally rubbed their eyes with the juice, became blinded, and ran about like distracted men, and some of them finally lost their sight. The famous *Manchineel* tree, *Hippomane Mancinella*, is said to be so poisonous that persons have died from merely sleeping beneath its branches. This is doubted by Jacquin, who, however, admits its extremely venomous qualities; but it is by no means improbable that the remark has some foundation in truth, particularly if the volatile nature of the poisonous principle of these plants be considered. The juice of *Hura crepitans* is stated to be of the same fatal nature as that of *Excæcaria*—its seeds are said to have been administered to negro slaves as purgatives, in numbers not exceeding one or two, with fatal consequences. The powdered fruit of *Hyænanche globosa* is used in the colony of the Cape of Good Hope to poison hyænas, as *nux vomica* to poison stray dogs in this country.

From the seeds of *Jatropha glauca* the Hindoos prepare, by careful expression, an oil which, from its stimulating quality, they recommend as an external application in cases of chronic rheumatism and paralytic affections. The seeds of *Jatropha Curcas* are purgative and occasionally emetic. An expressed oil is obtained from them which is reckoned a valuable external application in itch and herpes. It is also used, a little diluted, in chronic rheumatism. The varnish used by the Chinese for covering boxes is made by boiling this oil with oxide of iron. The leaves are considered as rubefacient and discutient; the milky juice is supposed to have a detergent and healing quality, and dyes linen black. The roots of the *Jatropha Manihot*, *Mandiocca*, yields a flour of immense importance in South America. This is obtained by crushing the roots after the bark has been removed, and then straining off the water; after which the mass is gradually dried in pans over a fire. The seeds of several species of *Jatropha* are purgative, but they sometimes act so dangerously as to require extreme caution in administering them. *Mercurialis perennis* is purgative and dangerous. It sometimes produces violent vomiting, incessant diarrhœa, a burning heat in the head, a deep and long stupor, convulsions, and even death; yet this very plant, when boiled, has been eaten as a pot-herb. The seeds of *Omphalea* are eaten safely if the embryo is first removed—if this is not done, they are cathartic. Both *Pedilanthus tithymaloides* and *Padifolius* are used medicinally in the West Indies. The former, known under the name of *Ippacuanha*, is used for the same purposes as that drug—the latter called the Jew Bush, or Milk Plant, is used in decoction of the recent plant as an antisyphilitic, and in cases of suppression of the menses. The purgative qualities of *Ricinus*, the Caster Oil plant, is well known; the root is said to be diuretic. The juice of *Scapium aucuparium* is reputed poisonous. A case is mentioned by Tussac of a gardener whose nostrils became swollen and seized with erysipelatous phlegmasis, in consequence of the fumes only of this plant. The root of *Tragia involucrata* is reckoned

by the Hindoo doctors among those medicines which they conceive to possess virtues in altering and correcting the habit in cases of cachexia, and in old venereal complaints attended with anomalous symptoms. There is reason to believe that the timber imported from the coast of Africa into Europe, under the name of African Teak, belongs to some tree of this order. From a species of a tree, stated by Mr. Brown to be an unpublished genus, it is said that a substance resembling caoutchoue is procured from it. *Euphorbia corollata* possesses, according to Rafinesque, emetic, cathartic, diaphoretic, expectorant, astringent, rubefacient, blistering and stimulating properties. It is reckoned equivalent to the officinal Ipecac. It purges at the dose of three to ten grains, and vomits at ten to twenty.





*Paeonia russi*



## N A T. O R D E R.

### *Ranunculaceæ.*

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PÆONIA RUSSI.

CRIMSON PEONY.

*Class XIII.* POLYANDRIA. *Order I.* MONANDRIA.

*Gen. Char.* *Calyx* five cleft, unequal. *Petals* five to ten. *Stamens* indefinite. *Disk* fleshy.

*Spe. Char.* *Flowers* large, and of a crimson color.

The *root* of this beautiful exotic plant is long, creeping, sending out numerous fine fibres, and of a cream color externally, and whitish within; the *stem* is upright, round, stiff, with from two to four branches of leaflets, and is terminated with a beautiful large blood, or crimson-red blossom; the *stamens* are numerous, and of a yellow color; the *leaves* are long lanceolate, of a dark green on the upper surface, almost grey on the under, and placed several upon the same foot stalk; the *seeds* are rather globose, and shining; the whole plant, especially when in blossom, produces a very disagreeable smell.

*Medical Properties and Uses.* This species of poppy is sometimes gathered in connection with the other varieties for medical purposes, but as its properties are so essentially different, and even sometimes proving dangerous, it should be avoided. The root is acrid, bitter, and fetid, and its qualities are reported to be narcotic and dangerous. The seeds possess the same qualities, and are somewhat emetic.

N A T. O R D E R :

*Passifloræ.*

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PASSIFLORA KERMESINA.

CRIMSON PASSION-FLOWER.

*Class XVI.* MONADELPHIA. *Order II.* PENTANDRIA.

*Gen. Char.* *Tube* of the *Calyx* short. *Throat* none. *Berry* pulpy.

*Spe. Char.* *Calyx* on both sides crimson-red. *Petioles* slender. *Segments* ten. *Stigmas* club-shaped. *Filaments* of a dark purple.

THE *stems* are slender, branched, climbing, and rise, when supported, from ten to thirty feet in height; the *petioles* are cordate, three-lobed, glabrous, and also every other part of the plant; *lobes* nearly equal, oval, obtuse, here and there glandulosa-dentate, green above and purple beneath; the *petioles* are also slender, bearing two or three elongated, dark-purple glands; from the *axil* a simple tendril arises, and from each side at the base, a large, semi-cordate, obtuse *stipule*, of the same color and texture as the leaves; the *calyx*, which is on both sides, is of a crimson-red; the *segments* ten, uniform, narrow-oblong, at first horizontal, afterwards reflexed, and whitish at their base; they are combined below into a short tube, swollen at the base; at the mouth of this tube is a filamentous *corolla* of several series of nearly erect, dark-purple *filaments*, the outer ones paler at the extremity—within this is another and smaller circle of white filaments, united for the greater part of their length into a conical tube; *column* much elongated: *stigmas* club-shaped.

The real name of the floral envelopes of this remarkable order, is a question upon which botanists entertain very different opinions:



*Passiflora kermesina.*



and their ideas of its affinities are consequently much at variance. According to Jussieu, the "parts taken for petals are nothing but inner divisions of the calyx, usually in a colored state, and wanting in several species;" and therefore, in the judgment of this venerable botanist, the order is apetalous or monochlamydeous. De Candolle adopts the same view of the nature of the floral envelopes as Jussieu; but he nevertheless considers, we think with propriety, the order polypetalous. Other botanists consider the outer series of the floral envelopes as the calyx, and the inner as the corolla; the one is green and the other colored. The nature of the filamentous appendages, or rays, as they are called, which proceed from the orifice of the tube, and of the membranous or fleshy, entire or lobed, flat or plaited annular processes, which lie between the petals and the stamens, are ambiguous, but are probably abortive stamens. With regard to the affinity of *Passifloræ*, Jussieu, swayed by the opinion he entertains of their being apetalous, and De Candolle, who partly agrees and partly disagrees with Jussieu in his view of their structure, both assign the order a place near *Cucurbitaceæ*; but when we consider the stipitate fruit occasionally valvular, the parietal placentas, the sometimes irregular flowers, the stipulate leaves, and the climbing habit of the plants, it is not difficult to admit their affinity with *Cuppariellæ* and *Violariæ*—the dilated disk of the former of which is probably analogous to the innermost of the annular processes of *Passifloræ*.

The plants composing *Passifloræ*, are the produce of South America and the West Indies, where the dense forests are filled with their numerous species, climbing over shrubs and trees, and bearing flowers of the most curious form of striking beauty, and so singular in their appearance that many christian traditions have been adapted to these singular floral inhabitants of the forests. Its name is from *passio*, passion, and *flos*, a flower—resemblance in crown of appendages to the passion of CHRIST.

*Passiflora incarnata*. Rose-colored Passion-flower. This species

has a perennial root; the stalks are annual, slender, rising four or five feet high; at each joint one leaf, on a short foot-stalk, having mostly three lobes, but the two side ones are sometimes divided part of their length into two narrow segments, and thus becoming five-lobed; they are thin, of a light green, and slightly serrate; the flowers are produced from the joints of the stalk, at the foot-stalks of the leaves, on long, slender peduncles, in succession as the stalks advance in height during the summer months; they have an agreeable scent, but are of short duration, opening in the morning, and fading away in the evening; the fruit is about the size of a full grown apple, changing to a pale orange color when ripe. This is a native of Virginia.

*Passiflora lutea.* Yellow Passion-flower. This plant has a creeping root, sending up many weak stalks, three or four feet high; the leaves are shaped like those of ivy, and almost as large, but of a pale green color and very thin consistence; the peduncle is slender, an inch and a half long; the flowers dirty yellow, not larger than the thumb nail when expanded. It is a native of Virginia and Jamaica, flowering in May and June.

*Passiflora serratifolia.* Notch-leaved Passion-flower. This species is perennial and shrubby; the stems are round—the younger ones slightly villose, and climbing very high; the stipules are linear and acuminate; the foot-stalks of the leaves furnished with two pairs of glandules; the leaves ovate, smooth, and slightly serrated round their whole outline; the peduncles are one-flowered and solitary; the flowers have an extremely agreeable odor. This plant is a native of the West Indies, flowering from May till October.

*Passiflora maliformis.* Apple-fruited Passion-flower. This species has a thick stem, triangular, by slender tendrils thrown out at every joint, rising to the height of fifteen or twenty feet; at each joint is one leaf, six inches long and four broad in the middle, of a lively green, and thin texture, having a strong midrib—from this arise several small nerves, diverging to the sides, and curving up towards the

top; petioles pretty long, having two small glands in the middle; two large stipules encompass the petioles, peduncles, and tendrils at the base; the peduncles are rather long, having also two small glands in the middle; the cover of the flower is composed of three soft, velvety leaves, of a pale red, with some stripes of a lively red color; the petals are white, and the rays blue; the flowers being large make a fine appearance, but are of short duration—there is, however, a succession for some time; the fruit is roundish, the size of a large apple, yellow when ripe, having a thicker rind than any of the other sorts. It grows naturally in the West Indies.

*Passiflora quadrangularis.* Square-stalked Passion-flower. In this species the stem is almost simple, thick, membranaceous at the four corners, somewhat hispid; the leaves are petioled, five or six inches long, entire somewhat rugged, but without any pubescence; the tendrils very long, axillary; stipules in pairs, ovate at the base of the petioles, on which are six glands; the peduncles opposite to the petioles, thicker; the flowers very large, encompassed by a three leaved involucre, the leaves of which are roundish, concave, entire, smooth, pale; the fruit is very large, oblong, and fleshy; the flower is much larger, though very much resembling the above sort in color. This is a native of Virginia, and some parts of South Carolina.

*Passiflora alata.* Wing-stalked Passion-flower. This species very much resembles the preceding at first sight; the flower, which is open, has also about the same appearance, but the peduncle is cylindrical; the three divisions of the involucre small, lanceolate, with glandular serratures; the pedicel thickest at the insertion into the convex base of the flower; the five or six outer petals are oblong with an awn, the inner longer; the outer principal rays thinnest and shortest, imperfect rays in a double row,—below and distinct from them a single row; no imperfect operculum; operculum partly horizontal and partly turning up to the column, then folding back down again and embracing the column, with which it is so connected that it appears inseparable, but is not joined to the

column; nectary round the column, is confined by the base; the column comes to the bottom of it. It is a native of the West India Islands.

If this does not equal the previous sorts in elegance, it exceeds them in magnificence, in brilliancy of coloring, and in fragrance, the flowers being highly odoriferous, and one of the most delightful of all climbing plants.

*Passiflora laurifolia.* Laurel-leaved Passion-flower, or Water Lemon. This species has a suffrutescent stem, with many divaricating, filiform branches; the leaves are a little emarginate at the base, nerved, and very smooth, on short petioles compressed a little, having two glands under the base of the leaf; the tendrils are very long; the peduncles the length of the petioles; the three leaflets of the involucre are roundish, concave, with blunt glandular toothlets about the edge, and pale; the five leaflets of the calyx are broad-lanceolate, slightly membranaceous at the edge, horned with a point or awn, smooth, variegated on the inside with blood-red dots; petals five, the length of the calyx, narrower, acuminate, with blood-red dots scattered over them; the flowers are very handsome and odoriferous, but the fruit is ovate and watery. It flowers in June and July, and is a native of Jamaica.

*Passiflora multiflora.* Many-flowered Passion-flower. In this species the stalks are very slender, sending out many small branches, and climbing to the height of twenty-five or thirty feet; by age they become woody towards the bottom, and their joints are not far apart; the leaves are on slender, short petioles, three and a half inches long and about two broad in the middle, rounded at the base, but terminating in a point at the top, smooth, entire, and of a lively green color; the flowers are axillary, on long peduncles, having an agreeable odor, but seldom continuing twenty-four hours open. There is a succession of them from June to September, and the fruit will sometimes ripen in this climate. It grows naturally in the neighborhood of Vera Cruz.



*Passiflora rubra.* Red-fruited Passion-flower. This species has an herbaceous stem, twining round, grooved, hirsute, and red; the lobes of the leaves entire, nerved, somewhat hispid and soft; the petioles are round, red, villose, and without glands; the tendrils sub-axillary; the flowers alternate, nodding, on solitary, one-flowered peduncles; the fruit spherical, marked with six lines, scarlet, when ripe hirsute. It is a native of the West Indies, flowering in April and May.

*Passiflora murucuza.* Moon-shaped-leaved Passion-flower. This species has an herbaceous, grooved, smooth stem; the leaves ovate or oblong, two-horned, with an intermediate bristle, three-nerved, veined, smooth, entire; dots on the back hollowed, pellucid; the petioles grooved, smooth, destitute of glands; the tendrils sub-axillary, filiform, and long; the flowers stand in pairs, they are axillary, large, and of a scarlet color; the berry is ovate, about the size of a pigeon's egg, and pedicelled. It is a native of the West Indies.

*Passiflora respertilio.* Bat-winged Passion-flower. This species has several striated, roundish stalks, somewhat less than a straw in size, of the same thickness from top to bottom, and of a brownish red color, dividing into many slender branches; the leaves shaped like the wings of a bat when extended, about seven inches in length, or rather breadth, from the base to the top not more than two inches and a half, the upper ones smaller, the middle wider, and the lower narrower, smooth and somewhat shining—the color in the upper ones pale, in the middle deeper, in the lower darker green, with two purple tubercles or glands towards the base, where they are connected with the petiole, which is set half an inch from the base of the leaf, three nerves springing from it, two extending each way to the narrow points of the leaf, the other rising upright to the top, where there is the greatest length of the leaf; the flowers are on short round peduncles from the axils of the middle and upper leaves, white and of a middling size, and about three inches in diameter when expanded; they are without scent, open in the evening or during the night, in

the month of July, and finally close about eight or nine o'clock in the morning. It is a native of the West Indies.

*Passiflora rotundifolia.* Round-leaved Passion-flower. In this species the stem is suffrutescent at the bottom, subdivided, angular, and grooved; the leaves semi-ovate, three-nerved, veined, smooth on both sides, marked behind longitudinally with pollucid dots; lobes terminated by very small bristles; the middle one a little longer than the others; the petioles short without glands; the tendrils filiform, very long; the stipules two, opposite awl-shaped; the peduncles axillary, filiform, and about an inch long; the flowers nodding, pale green, and rather large; the berry egg-shaped. It is distinguished from the other sorts by its rounded leaves, which are slightly three-lobed at the top only. It is a native of Louisiana, and is also found in Jamaica.

*Passiflora ciliata.* Ciliated Passion-flower. This species runs to a great height, and has dark green glossy leaves; the involucreum is composed of three leaves divided into copillary segments, each terminating in a viscid globule; the pillar supporting the germen is bright purple with darker spots; the petals are greenish on the outside and red within; the crown consists of four rows of radii, which are varied with white and purple. It is a native of Jamaica.

*Passiflora suberosa.* Cork-barked Passion-flower. This species rises with a weak stalk to the height of twenty feet; as the stalks grow old they have a thick fungous bark like that of the cork tree, which cracks and splits; the smaller branches are covered with a smooth bark; the leaves are smooth on very short petioles; the middle lobe is much longer than the lateral ones, so that the whole leaf is halbert-shaped; the flowers are small, and of a greenish yellow color; the fruit is egg-shaped and of a dark purple when ripe. It is perennial, and a native of the West Indies, flowering from June till September.

*Passiflora holosericea.* Silky-leaved Passion-flower. In this species the stalks rise about twenty feet high, dividing into many

s'ender branches, covered with a soft hairy down; the leaves are shaped like the point of a halbert, three inches long and an inch and a half wide at the base, light green, soft and silky to the touch, standing obliquely to the foot-stalks; the flowers are not half so long as those of the common or blue Passion-flower; the fruit small, roundish, yellow when ripe; leaves ovate, tomentose on both sides; lateral lobes short, with an obsolete gland underneath, behind the sinus of the lobe. It grows naturally at Vera Cruz, flowering nearly all the summer months.

*Passiflora glauca.* Glaucous-leaved Passion-flower. In this species the whole plant is very smooth and even; the leaves glaucous underneath, and undotted; the petioles furnished with two or four glands below the middle; the stipules acute, quite entire, more than half an inch in length; the flowers are sweet. This sort is a native of Cayenne.

*Passiflora minima.* Dwarf Passion-flower. This species has the stem twining, simple, becoming corky at the base with age, round and smooth; the leaves subpeltate, subcordate; lateral lobes almost horizontal, all acute, nerved, smooth on both sides; the petioles short, round, reflex, and smooth; the glands two, opposite, small, sessile, concave, brown, and in the middle of the petioles; the stipules two, opposite, awl-shaped, by the side of the petioles; the tendrils long, between the petioles; peduncles axillary, solitary, longer than the petioles, loose, one-flowered; the flowers small, whitish; the berry small, blue, and egg-shaped. Native of Louisiana.

We have thus given a brief description of some of the most ornamental and valuable species of the Passion-flower tribe, and it is with much regret that we are compelled to delay a farther description of this most beautiful and enchanting genus for want of room. There is yet one hundred and thirty-five species of this curious plant undescribed in this work, some of which are valuable for their fruit and as an ornament. The remaining ones undescribed are of a

character but little known to the inhabitants of this country ; hence their history would be of but little interest.

*Propagation and Culture.* All the species of this elegant and curious genus are well suited for climbers in conservatories and stoves, being free growers and of easy culture. They thrive well in very light, rich soil, and the more room they are allowed, both for roots and for stems, the freer they will grow and flower. They are all easily raised from cuttings planted in sand or mould, placed in heat, and the younger the cuttings are the sooner they will strike root. Most of the species ripen fruit in our stoves, and consequently many fine varieties have been raised by impregnating the stigmas of one with the pollen of another. Several hybrids, raised from the seeds set by the pollen of *Passiflora corulea*, are nearly hardy ; and in fact, this is the only species that can be considered quite hardy, and this requires a sheltered situation. It is therefore safest to plant against a wall, that it may be protected by a mat in severe weather. It thrives well in any soil, and cuttings of it are readily rooted under a hand-glass.

*Culture of the Edible Species of Granadilla.* All the species will fruit even in large pots, but it is best to plant them in an angle of a stove, which has been parted off either by boards or brick-work, as low as the pit goes. At the bottom of the cavity formed by this division should be laid some brick rubbish, over which may be thrown a little dead tan, and the whole be then filled with equal parts of very old tan, and a compost of leaf-mould and rotten vegetable compost—therein the roots will strike freely, and will even spread through the partition into the pit. They do not require the full heat of the stove, for they flourish best in a temperature of from 65° to 70° ; but they will not bring their fruit to perfection if kept in a common green-house or conservatory, though they will grow and flower in it. The shoots, as they advance, may be trained near to, and under the inclined glass of the stove. The first flowers will appear in May, and the blooming will continue until September, the

fruit setting the whole time; but if it does not set well, it will be advisable to impregnate the stigmas by applying the polen with a feather. As they grow, the very strong shoots should be cut out from their origin, for these do not bear fruit so abundantly as those which are less vigorous; but the fruiting-branches must not be shortened on any account. The temperature must be kept up equally during the time of flowering and fruiting. The crop will begin to come in August, and will continue until January, but the earlier produce is the best. When the crop is all off, which will be early in January, the heat must be reduced to about 50°, so as to check and stop the growth. It is found that the shoots break better and in greater quantity from the older wood than from that of two years standing. In this dormant and reduced state it is to be kept during January and February, after which the necessary heat may be applied to cause it to resume its functions for the ensuing season. All the species and various varieties of this genus are worthy of cultivation, and ought to attract the attention of gardeners and florists.

## N A T. O R D E R.

### *Leguminosæ.*

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ACACIA PRENSANS.

PRICKLY ACACIA.

*Class XVIII.* POLYGAMIA. *Order I.* MONOECIA.

*Gen. Char.* *Stem* climbing, erect, stout. *Leaves* feathery. *Petioles* velvety, or downy. *Leaflets* numerous.

*Spe. Char.* *Stipules* deciduous. *Peduncles* unarmed. *Flowers* sessile. *Calyx* pubescent, shining, cylindrical. *Petals* four to six.

THIS is a climbing *shrub*, of external, rapid, and luxuriant growth, and remarkably elegant and delicate foliage; the *stem* is erect and stout, but not thicker than the arm, and covered with a dark-brown bark; the *branches* are smooth, round, and ash-colored below; excessively elongated, climbing, and clinging tenaciously to every thing within their reach by their copious, small hooked prickles, of extraordinary rapid growth, quickly reaching to the top of any lofty tree within their neighborhood, which if unchecked, they soon, by their luxuriance, completely over-run; sulcated towards the ends, which with all other parts of the plant, while young, are densely but minutely pubescent, or rather velvety, and of a rich tawny, or golden ferruginous color; the *leaves* are very beautiful, and feathery, of a bright green, subdeflexed, and five or six inches long; *petioles* about an inch long, with a sugary gland below the middle, velvety or downy like the rachides, which have from two to four similar glands between the ultimate pairs of pinnæ—the lowest however, placed always a little below the origin of the pinnæ; the petioles are gen-



*Acacia prensans.*





erally unarmed, but the rachides are prickly beneath; leaflets from sixteen to twenty, and generally an odd one at the lower side of the base of each pinnæ; narrow, almost linear, acute, very unequal at the base, or subdimidiate; and *stipells* minute, linear at the origin of the pinnæ; *stipules* deciduous; *panicles* from six inches to a foot long, sub-cylindrical or thyriform, their main stems prickly, at first terminal, but their ends ultimately shoot out into a branch; *peduncles* full an inch long, round, unarmed, covered with a fulvous or golden brown tomentum, patent, divaricate, singly or in bunches of from two to six from each axil; *bracteas* ovate or lanceolate, deciduous; heads globose, very dense and close; flowers perfectly sessile, with minute, linear, short, hairy, deep dull red or purplish bracteolas at their base, not visible externally; *calyx* pubescent, but shining, cylindrical, four to six toothed—the teeth short, half-ovate, often unequal in breadth, each two-nerved; *petals* four to six, but their number does not uniformly correspond with that of the sepals—pale green with whitish edges, and the tip purplish-red; *stamens* very numerous and dense, not spreading, but forming close, thick bundles; between which appears the dull-red color of the calyxes; *filaments* rather short, smooth, and nearly white; *anthers* small, globose, pale yellow; *style* smooth, nearly white, a little longer than the stamens, with a simple stigma; pods never perfected in this country. All the flowers, however, appear to be hermaphrodite.

This is a most elegant and lovely shrub, but a dangerous neighbor to other plants within its reach, and requiring much space for its display. It would be capable of being formed into an impenetrable fence, or might be advantageously employed to give additional security, if trained along a wall. The flowers are scentless, but singular and handsome, from the strong contrast between the pale yellow bundles of stamens, and the dark dull-red of their interstices. In the bud the heads are altogether of a deep red, becoming yellower as the filaments expand. The native country of this species of *Acacia* must remain uncertain. In medicine it is but little known.

## NAT. ORDER.

### *Leguminosæ.*

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ACACIA VERA.

GUM ARABIC TREE.

*Class* — POLYGAMIA. *Order* — MONŒCIA.

*Gen. Char.* *Flowers*, polyamous. *Calyx*, four to five toothed. *Petals*, four to five, sometimes free, and sometimes joined into a corolla. *Stamens*, variable.

*Spe. Char.* *Branches* and *leaves*, glabrous. *Flowers*, usually twin yellow. *Branches* and *spines*, red.

THIS is a most elegant climbing *shrub*, with long, weak, diffuse, interweaving branches, clinging and supporting themselves by means of their very short, recurved, weak prickles, which are inconspicuous to the eye, though at once perceptible to the touch. The *prickles* are found on every part of the plant, except the peduncles, and secondary rachises of the leaves; they are also generally worn off the old branches and stems. These, when old, are pale brown or grey, as well as smooth and round; the young ones are strongly sulcated and angular, and more or less pubescent with short, wooly, fulvous, glandular hairs; *foliage* most delicate and lovely; the *leaves* resembling gracefully curved or drooping plumes of feathers, of a fine, bright, peculiar yellow-green, six to eight inches long, and one to two broad; *stipules* very minute, narrow-minute, ovate, erect, and withering; *petioles* geniculate at the base, the part below the elbow two lines long, angular and slender, the upper side channelled with an oblong, hollow, boat-shaped gland a little above the elbow; copiously clothed with short, glandular, fulvous pubescence, and furnished with recurved,



*Mimosa pudica.*



scattered prickles beneath, like the main *rachis*, which is elegantly curved; *leaflets* very minute and delicate, apparently smooth and naked, but through the lens minutely and irregularly puberulous, especially at the edges; they close up and lose all their beauty about four or five o'clock in the afternoon; the *spikes* (not *heads*) of flowers are short and oblong, pale ochre-yellow, produced four or five together from the axils of the upper leaves, which become less and less developed towards the ends of the branches, so as to form a long, irregular sort of a terminal, leafy, compound, branched *panicle*; slightly fragrant; *pedicels*, half to three quarters of an inch long, round, unarmed, densely fulvo-pubescent; *spikes* oblong, abbreviate, and about half an inch long; *calyx* very minutely pubescent, in five shallow segmets like the corolla, both pale green; *stamens* very numerous; *anthers* simple; *seeds* numerous, ten to twelve, rather large, flattened, but convex in the middle.

Though the flowers of this plant are not remarkably conspicuous, it is impossible to conceive of anything more graceful and elegant than the thick tufted, feathery foliage, or the extreme delicacy and symmetry of its parts. The pod and seed are singularly large in proportion to the rest of the plant.

This is the shrub which yields the gum-arabic of the shops, and *succus acaciæ*. According to Hasselquist, the Arabs call it *chasad*. The gum is gathered in vast quantities from the trees or shrubs growing in Arabia Petræa, near the north bay of the Red Sea, at the foot of Mount Sinai. This gum is called by the dealers *Thur* or *Thor*, which is the name of the harbor in the north bay of the Red Sea, thereby distinguishing it from gum-arabic. The gum-thur is also more pellucid and white, whereas gum-arabic is of a brown or dirty color, and generally opaque.

Gum-arabic is a concrete juice which exudes from various species of *Acacia*, but especially from *Acacia vera*, *Acacia Arabic*, and *Acacia Senegal*, natives of the sandy deserts of Africa, Arabia, and other parts of Asia. It either exudes spontaneously or from incisions made

in the bark, and afterwards hardens in the air. The barks of all the species are highly astringent, and some are used in India for tanning. There are two kinds of gum found in the shops in this country, and often sold promiscuously, but distinguished in commerce by the names of gum-arabic and East India gum. Gum-arabic consists of roundish transparent tears, colorless, or of a yellowish color, without smell or taste, and almost perfectly soluble in water. The pieces which are most transparent, and have least color, are reckoned the best. They are sometimes separated from the gum-arabic, and sold for about double the price, under the name of picked gum. The East India gum is darker colored than gum-arabic, and is not so readily soluble in water. Gum-thur, the produce of *Acacia Arabic*, is almost colorless, and resembles the picked gum, and gum-senegal resembles the East India gum.

About the middle of November, that is, after the rainy season, which begins early in July, a gummy juice exudes spontaneously from the trunk and principal branches. In about fifteen days it thickens in the furrow down which it runs, either into a vermicular shape, or more commonly assuming the form of round or oval tears, about the size of a pigeon's egg, of different color, as they belong to the white or red gum tree. About the middle of December, the Moors encamp on the borders of the forests, and the harvest lasts five weeks. The gum is packed in very large sacks of tanned leather, and brought on camels and bullocks to certain ports, where it is sold to the French and English merchants. Mr. Jackson, in his account of the Empire of Morocco, informs us that from Mogodor they export two sorts of gum, one is common gum-arabic, the other finer, called gum-soudan, brought from Tumbucto by the caravans. He also says that the gum called Morocco or Barbary-gum, is produced from a thorny tree called *Attabch*. It yields most gum during the parching heat of July and August, and the hotter the weather, and the more sickly the tree appears, the more gum it yields.

The gum is highly nutritious. During the whole time of the gum

harvest, of the journey, and of the fair, the Moors of the desert live almost entirely upon it; and experience has proved that six ounces are sufficient for the support of an adult during twenty-four hours.

*Medical Properties and Uses.* The characters generally given of gum as a vegetable principle, belong only to the gum-arabic, which is transparent and colorless, easily reduced to powder, without smell, and of a slightly sweetish taste. The solution of gum in water constitutes mucilage. It is thick and adhesive, and soon dries when exposed to the air. Gum is also soluble in weak acids, but is totally insoluble in alcohol. Gum is very little disposed to spontaneous decomposition. By oxygenizement with nitric it forms successively mucic, malic, and oxalic acid; with oxymuriat acid it forms citric acid. By exposure to heat it does not melt, but softens, swells, and becomes charred.

In medicine, gum-arabic possesses the powers of mucilaginous demulcent in a high degree. It is useful in all cases where there seems to be a natural deficiency of mucus in the intestinal canal.—Dissolved in milk, barley-water, or almond emulsions, it removes tenesmus. It is useful in an irritable state of the respiratory passages, in catarrh, hoarseness, and cough. For this purpose it may be either administered in substance as a troche, or in a strong solution, and may be combined with a little opium. It is also useful in salivation after mercury, or in small pox. Externally it is applied in powder to bleeding vessels of a small size as a styptic, operating by glueing them up. It is also used in solution as an injection in gonorrhœa.

## NAT. ORDER.

### *Ranunculaceæ.*

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HELLEBORUS VIRIDIS.

GREEN HELLEBORE.

*Class XIII.* POLYANDRIA. *Order III.* POLYGYNIA.

*Gen. Char.* *Calyx*, permanent. *Petals*, eight to ten. *Stamens*, thirty to sixty. *Stigmas*, terminal, orbicular.

*Spe. Char.* *Leaves*, radical, very smooth. *Peduncles*, bifid. *Sepals*, roundish-ovate, green.

This species of hellebore has a round, delicate *stem*, a little branched near the top, but not near as much as the other varieties; leafy, reddish at the base, upright, smooth, and from a foot to eighteen inches in height; the *leaves* are soft, and of a light pea-green color; those from the bottom are on long petioles, but those on the stem sit close to their sheaths; the *leaflets* are from seven to ten in number, lanceolate, acuminate, sharply serrate, smooth, gashed, usually trifid, the divisions sometimes deeply lobed; and at the base of each peduncle is a similar leaf, only smaller; the *peduncles* are axillary, an inch long, round, supporting one and two nodding green flowers. It is said to be a native of France, but is found in many parts of the United States. Large quantities of this plant I have found growing on the north side of Great Hills, (so called by the inhabitants,) in the town of Leverett, Franklin county, Mass.

*Medical Properties and Uses.* Haller reckons up all the reputed virtues of *Hellebore* under this species; and indeed seems to be what German practitioners have substituted for the true plant of the ancients, *Helleborus orientalis*. We learn from the *Flora Londinensis*, that the





*Helleborus viridis.*



roots of this plant are used in London for the true Black Hellebore ; and probably their qualities are the same, for this species is even more nearly allied to the ancient Greek plant *Helleborus orientalis* than the *Helleborus niger*. The whole herb is fœtid, acrid, violently cathartic, with a nauseous taste, especially when fresh. The leaves, when dried, are sometimes given as a domestic medicine to destroy worms ; but they must be used sparingly, being so violent in their operations, that many instances of their fatal effects are recorded. A dose of about fifteen grains of the powder of the dried leaves is given to children, which proves gently emetic and purgative. The decoction of about a drachm of the fresh leaves being considered equal to fifteen grains of the dry ones. It is usually repeated on two, and sometimes three successive mornings, and seldom fails to bring away worms, if there be any in the intestinal canal. In small doses this plant proves diuretic and emmenagogue. It has been used as a purgative in cases of mania, melancholy, coma, dropsy, worms, and psora. But its use in any form requires very great caution, for its effects are very uncertain, and affected by many circumstances. It may be exhibited in the form of an extract, although its activity be much dissipated by the preparation. An infusion and tincture certainly promise to be medicines of more uniform powers, and are preferred to other preparations.

## NAT. ORDER.

### *Hypericineæ.*

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HYPERICUM HIRCINUN.

FÆTID ST. JOHN'S-WORT.

*Class XVIII.* POLYADELPHIA. *Order II.* POLYANDRIA.

*Gen. Char.* Capsule, membranaceous. *Stamens*, numerous, free. *Petals*, five. *Sepals*, five, connected at the base. *Styles*, three to five. *Capsules*, one, many celled, many seeded.

*Spe. Char.* *Branches*, winged. *Leaves*, emarginate. *Peduncles*, bi-bracteate. *Stamens*, exceeding the corolla in length.

This species of St. John's-wort has a shrubby *stalk*, and rises from three to three and a half feet high, sending out small opposite branches at each joint; the *leaves* are oblong, ovate, sessile, placed in pairs, and have a peculiar disagreeable rank smell; the *flowers* are in terminating bunches, producing the appearance of a large ball of flowers when in full blossom. It is said to be a native of the south of Europe, but grows naturally on the hills in the central part of Massachusetts. It seeks the most rocky, desolate places on the north side of high hills, where the forest is densely set with trees, forming almost a perpetual shade.

*Hypericum balearicum.* Warted St. John's-wort. This plant rises with a slender shrubby stalk in this country, about two feet high; but in its native soil it acquires the height of seven or eight feet, sending out several weak branches of a reddish color, and marked with scars where the leaves have fallen off; the leaves are small, oval, waved on their edges, and having several small protruberances on their under side—they sit close to the branches, half embracing them



*Hypericum hircinum.*



at the base ; the flowers are terminating, large, and of a bright yellow. It grows most naturally in Majorca.

*Hypericum Ascyron*. Great-flowered St. Peter's-wort. This species has a stem about two feet high, round, smooth, and rufescent ;—the leaves are pale green, paler underneath, about an inch long and half an inch wide, roundish, opposite ; the flowers terminating ; calyx green ; corolla pale yellow, and about five times as large as the common sort. This is a native of the middle sections of the United States.

*Hypericum Androsaemum*. Common Tustan. This plant has a perennial, thick, woody root, of a reddish color, and sends out a number of very long slender fibres ; the stems are suffruticose or under-shrubby, ancipital, two-edged, or slightly winged on opposite sides, from two to three feet high, branched towards the top, of a reddish color, and smooth ; branches brachiate or decussated, and spreading ; the leaves opposite, sessile, ovate, entire, smooth, dark green, glaucous on the under side, netted with numerous projecting veins and nerves, which become through age ferruginous ; on the stem they are about two inches long, and an inch and a half broad at the base ;—those on the branches are smaller, of different sizes, and some of them approaching to lanceolate ; the flowers are small for the size of the plant, and disposed in a cyme ; the peduncles are round, smooth, usually two or three flowered, but sometimes only one flowered ; the fruit is an ovate capsule, assuming the appearance of a berry, at first sight of a yellowish-green, then red or brownish-purple, and lastly almost black when ripe. This is a native of the southern parts of Europe.

*Hypericum Canariense*. Canary St. John's-wort. This species rises with a shrubby stalk six or eight feet high, and dividing into branches at the top ; the leaves are oblong, set by pairs close to the branches, having a strong smell, but not so fœtid as some of the other varieties ; the flowers terminate in clusters, very much like those of the preceding sort. It is a native of the Canary Islands, and flowers from July till September.

*Hypericum elatum.* Tall St. John's-wort. The younger stems of this plant are somewhat reddish; leaves ovate-oblong, acute, dilated at the base, somewhat emarginate, with the margins somewhat revolute, flowers corymbose; peduncles bibracteate; sepals ovate-oblong. It is a native of North America, and flowers in July and August.

*Hypericum frondosum.* Frondose St. John's-wort. The branches of this plant are two-edged; leaves ovate-elongated, blunt at the apex, and narrowed at the base; flowers large, usually solitary; calyx equalling or exceeding the petals in length; styles united together. It is a native of North America, on shady Rocks in Kentucky and Tennessee. Flowers in July and August.

*Hypericum amoenum.* Pleasing St. John's-wort. This plant rises about two feet in height, bearing branches two-edged; the leaves are oblong elliptical, bluntish at the apex, but tapering to the base, with curled revolute margins; flowers terminal, and usually solitary; sepals ovate, acuminate, never equal in length with the corolla; styles connected together. This plant is a native of South Carolina and Georgia. The flowers are large, of a bright yellow, and with red ovaries. Flowers in July and August.

*Hypericum sessiliflorum.* Sessile-flowered St. John's-wort. This plant rises about three feet in height, with round branches; leaves are stem-clasping, cordate-oblong, without nerves, dotted; corymb terminal; flowers nearly sessile; sepals oblong, acute, leafy, and much longer than the corolla; styles joined together. Native of North America. Flowers in August and September.

*Hypericum grandiflorum.* Great-leaved St. John's-wort. This is a shrubby plant rising about three feet in height; the stem round, and of a reddish cast; leaves ovate-oblong, cordate, somewhat stem-clasping, acute at the apex, netted with pellucid veins; flowers corymbose; peduncles after flowering much longer than the corolla. This is a native of Teneriffe, and flowers in July and August.

*Hypericum inodorum.* Scentless St. John's-wort. This is a



shrubby looking plant, from three to three and a half feet in height ; the stem is suffruticose, and round ; branches are somewhat winged ; leaves ovate, very blunt ; calyx lanceolate, acute ; peduncles sometimes bibracteate ; stamens equal in length with the corolla. The herb is scentless. Native of Greece and the Levant. Flowers in September.

*Hypericum floribundum.* Bundle-flowered St. John's-wort. This is a shrubby plant, varying in height from two to four feet, with a round stem ; leaves sessile, lanceolate, numerous, without dots ; peduncles dilated and somewhat compressed towards the apex ; calyx obtuse ; corolla and stamens marcescent. It is a native of the Canary Islands, and flowers during the month of August.

*Hypericum cordifolium.* Heart-leaved St. John's-wort. This is a shrubby looking plant, sending up a round stem about two feet high ; leaves elliptical, acute, coriaceous, smooth, somewhat stem-clasping, without dots ; flower-bearing branches crowded, and leafy below ; bracteas ovate-cordate, acute ; sepals ovate, mucronate, without dots ; petals oblong, unequal-sided, obliquely mucronulate ; stamens short ; styles unconnected, scarcely longer than the corolla. This plant is a native of Nipaul, and flowers from April till October.

*Hypericum quinquenervium.* Five-nerved-leaved St. John's-wort. This is a small, delicate looking plant, with a stem about one foot in height ; and which is tetragonal ; leaves somewhat stem-clasping, ovate, obtuse, obscurely five-nerved, full of pellucid dots, which are acute on the under surface ; corymbs dichotomous ; sepals linear-lanceolate. This is a perennial, herbaceous, hardy plant. Native of the United States, and found quite plenty from Canada to Carolina, in over-flowered places. It is also found on Mount Quindiu, in South America.

*Hypericum axillare.* Axillary-flowered St. John's-wort. This species has a shrubby, round stem, somewhat diffused ; leaves lanceolate-linear, narrowed at the base, with revolute margins ; sepals rather unequal ; styles at first joined, but afterwards free ; peduncles on the top of the branches axillary, three-flowered, with the middle flower

sessile ; flowers about the size of those of the *Hypericum perforatum*, (ex. vol. i. page 55.) It is a native of North America, in the pine woods of Georgia and Florida, and flowers in July.

*Hypericum hirsutum*. Hairy St. John's-wort. This plant rises from two to three feet high, and sends up an erect, round, hairy stem ; leaves ovate-oblong, downy, ribbed, full of pellucid dots intermixed with a few dark ones ; panicle long, racemose ; calyx lanceolate, somewhat acute ; fringed like the bracteas with numerous black, viscid glands, on shortish stalks, such as also terminate the petals ; styles diverging ; flowers of a bright yellow color ; according to Linnæus they close at night. It is a hardy, herbaceous plant. Native of most parts of Europe, and the northern parts of the United States, in shady places, thickets and hedges, and chiefly on a dry, chalky soil. It flowers in June and July, and sometimes late in August.

*Propagation and Culture*. The greater part of the species are very showy, although they have quite a common appearance. The hardy, herbaceous kinds will grow in any common garden-soil, and are easily increased by dividing the plants at the roots or by seeds ; the stove, frame, and green-house herbaceous species should be increased in the same manner. The annual sorts only require to be sown in the open border about the beginning of April. The hardy, shrubby kinds, being dwarf and showy, are well fitted for the front of shrubberies ; they will thrive in any common garden soil, and are easily increased by dividing the plants at the root, by seeds, or by cuttings planted under a hand-glass. The green-house and frame shrubby kinds will thrive well in a mixture of loam and peat, and young cuttings of them will root freely in sand under a bell-glass. The stove shrubby species will thrive in the same kind of soil as that recommended for the green-house species, and young cuttings of them will root in sand under a bell-glass in heat.

*Medical Properties and Uses*. Nearly the same properties pervade all the species of this extensive genus. *Hypericum hircinum*, is promiscuously gathered and sold with the *Hypericum perforatum*, be-

ing so nearly alike both in qualities and appearance. It has a powerful, fetid, lemon-like scent when rubbed, staining the fingers with a dark purple, from the great abundance of colored essential oil lodged in the herbage, and even in the petals. As this plant was found to bleed at the slightest touch, it was supposed to have a vulnerary quality, and became the "balm of the warrior's wound," giving a blood-red color to every composition, whether of a spirituous or oily nature, into which it entered. The essential oil, the seat of this color, is aromatic, and possibly tonic or stimulating, without much acrimony.

Although in the present practice this plant is not much regarded as a medicine, yet its sensible qualities, and the repeated testimonies of its virtues, entitle it to further trials. To the taste it is astringent and bitter, and it seems to be chiefly diuretic. It has been given in ulcerations of the kidneys, and has even been supposed to possess virtues as a febrifuge. The leaves, given in substance, are said to destroy worms. The dried plant, boiled with alum, dyes wool yellow.

The common people in France and Germany gather this species of St. John's-wort with great ceremony on St. John's day, and hang it in their windows as a charm against storms, thunder, and evil spirits; mistaking the meaning of some medical writers, who have fancifully given this plant the name of *Fuga Dæmonum*, from a supposition that it was good in maniacal and hypochondriacal disorders. Formerly it was also carried about by the people of Scotland as a charm against witchcraft and enchantment; and they fancy it cures rosy milk, (which they suppose to be under some malignant influence,) by milking afresh upon the herb.

## NAT. ORDER.

*Ericaceæ.*

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AZALEA LEDIFOLIA.

PURPLE-FLOWERED AZALIA.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, five-parted. *Corolla*, short, campanulate, five-cleft. *Stamens*, five, equal, shorter than the corolla. *Cells* of anthers, opening by a terminal pore. *Style*, straight, inclosed. *Capsule*, five-celled.

*Sp. Char.* *Leaves*, opposite, small, elliptic, glabrous, with revolute margins. *Flowers*, pedicellate, rising in fascicles from the axils of the upper leaves, small, red.

THIS is a small *shrub*, rising from two to four feet in height. Its general characters are mostly allied with the *Azalea indica*, both in qualities and habits of growth; the *roots* are fibrous; the *fibres* moderately slender, branched; the *stem* is slender, erect, compressed, bearing four or five pair of leaves alternately placed; *spathe* terminal, of two unequal leaves; *peduncles* nearly as long as the spathe, slender, curved as if from the weight of the flower, which sometimes droops; *perianth* of six oblong, slightly concave, obtuse, bright purple, moderately spreading sepals, faintly striated externally; *capsules* five-celled, with five valves, cloven-pointed, and inflexed edges from the double partitions.

Our wild specimens of this richly colored plant perfectly accord with the one here figured, only they are rather smaller, and the flower less drooping. It appears to be a rare plant in collections, and though stated to be hardy, we find the shelter of the green-house is required to protect them through the winter.



*Aralca ledifolia.*



*Syringa Josikaea.*

## NAT. ORDER.

*Oleincæ.*

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SYRINGIA JOSIKÆA.

GERMAN LILAC.

*Class II.* DIANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Corolla*, funnel-shaped, or companulate, four-parted.  
*Stamens*, two, short. *Fruit*, capsular, two-celled.

*Spe. Char.* *Calyx*, small, four-toothed. *Stigma*, bifid. *Capsule*,  
ovate, compressed, two-celled, two-valved, two-seeded. *Leaves*,  
ovate-lanceolate.

THIS *shrub* rises erect from six to eight feet in height; *branches* spreading, very slightly warted, twigs purple; *leaves* about three inches long and an inch and a quarter broad, elliptical-lanceolate, attenuated at both ends, shining and lurid above, white and veined below, wrinkled, glabrous on both sides, ciliated, short; *panicle* terminal, erect; *calyx* like the pedicels, peduncles, rachis, petiole, middle rib of the leaf and the branches pretty closely covered with short, glandular pubescence, four-toothed, teeth blunt and much shorter than the tube; *corolla* half an inch long, clavate-funnel-shaped, deep lilac, glabrous, wrinkled; *tube* slightly compressed; *limb* erect, four-parted; *segments* involute at their edges; *stamens* adhering to about the middle of the tube; *anthers* incumbent, oblong, yellow; *pistil* much shorter than the tube; *stigmas* large, cohering; *style* filiform, glabrous; *germen* green, glabrous, bilocular; *ovals* four.

This is a new species of lilac, and though less beautiful than the two in common cultivation, yet being equally hardy it cannot fail to be a most acceptable ornament to our gardens and shrubberies. The

first knowledge we have of this curious plant is from Baron Jacquin, who exhibited dried specimens of it from Siebenburgen, and since its discovery was due to "Frau Baronin von Josika, geboren Gräfin Czaki." He named it in compliment to that distinguished lady, and gave it a specific character. In another part of the same work, we find that not only is the present species a native of Germany, but that the common Lilac, *Syringa vulgaris*, which has hitherto been considered almost exclusively of Persian origin, as stated by Dr. HEUFFEL, to adorn with its copious blossoms the inaccessible chalky precipices of the Cverna Valley, and Mount Domaglett in Hungary.

*Syringa* is from the Greek word *syrinx*, a pipe. The branches are long and straight, and are filled with medulla; hence the old name of the lilac, pipe-tree. Linnæus places it among poetical names. The story of the nymph Syrinx, in OVID, is well known. The English name of the genus is from lilac or lilag, the Persian word for flower.

*Syringa vulgaris*. Common Lilac. This is a very common shrub which grows to the height of eighteen or twenty feet in good ground, and divides into many branches; those of the white sort grow more erect than the blue; and the purple or Scotch Lilac has its branches yet more diffused; the branches of the white covered with a smooth bark of a gray color; in the other two it is darker; the leaves of the white are of a brighter green—they are heart-shaped in all, nearly five inches long, and three and a half broad near the base, placed opposite, on foot-stalks about an inch and a half in length; the buds of the future shoots, which are very turgid before the leaves fall, are of a very bright green in the white sort, but those of the other two are dark green; the flowers are always produced at the ends of the shoots of the former year, and below the flowers, other shoots come out to succeed them—as that part upon which the flowers stand decays down to the shoots below every winter. There are generally two bunches or panicles of flowers joined at the end of each shoot; those of the blue are the smallest—flowers are also smaller, and placed thinner than either of the others; the bunches on the white are larger, but those of the



Scotch are still larger, and the flowers fairer; it of course makes the best appearance; the panicles of flowers grow erect, and being intermixed with the bright green leaves, have a fine effect, which, with the fragrance of the flowers, renders it one of the most beautiful shrubs of the garden. The flowers appear early in May, or towards the end of April, and when the season is cool, continue three weeks—but in hot seasons soon fade. It is supposed to be a native of Persia. There are several varieties of this species, some with white flowers, blue flowers, and purple flowers, or Scotch Lilac.

*Syringa Persica*. Persian Lilac. This species is a shrub of much lower growth than the common sort, seldom rising more than five or six feet high; the stems are covered with a smooth brown bark; the branches are slender, pliable, extend wide on every side, and frequently bend down where they are not supported; the leaves two and a half inches long, and three-fourths of an inch broad, and of a deep green color; the flowers hang in large panicles at the end of the former year's shoots, as in the former; of a pale blue color, and having a very pleasing, agreeable odor. They appear at the end of May, soon after those of the common sort, and continue longer in beauty, but do not always perfect their seeds in this northern climate. There are also several varieties of this species, such as the common purple-flowered; white-flowered; blue-flowered; and the lacinated, or cut-leaved.

*Propagation and Culture*. These plants are mostly raised by suckers or layers, and sometimes by seeds. The suckers should be taken off in the autumn or spring, with root-fibres to them, and be planted out either in nursery rows, to remain a year or two, or where they are to remain. The layers may be made from the young, pliant shoots, and be laid down in the autumn in the usual way, and in the autumn following, taken off and planted out, as in the suckers.

## NAT. ORDER.

### *Rubiacea.*

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GARDENIA FLORIDA.

CAPE JASMINE.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, an ovate ribbed tube. *Corolla*, funnel-shaped. *Anthers*, from five to nine, linear. *Stigma*, clavate. *Ovarium*, one-celled, half divided. *Berry*, fleshy, crowned. *Seeds*, minute. *Flowers*, axillary, terminal, solitary, pale yellow.

*Spe. Char.* *Leaves*, elliptic, acute at both ends. *Flowers*, solitary, five to nine parted. *Berry*, five to six angled, five to six celled at the base, and one-celled at the apex, orange colored, size of a pigeon's egg.

THIS is a *shrub* from two to six feet high, with numerous stout, woody branches, which bear crowded foliage towards their extremities; *leaves* oval or obovate, acute, subcoriaceous, opposite, often appearing verticillate; *bractes* acute, membranaceous, deciduous; *flowers* large, solitary, very fragrant; *calyx segments* erect, narrow, almost linear, much shorter than the tube of the corolla; *corolla*, pale yellow, somewhat leathery, soon turning quite yellow, hypocrateriform; *tube* long, straight; *limb* spreading, of six oblong, wavy, obtuse segments; *anthers* nearly sessile, linear, situated at the mouth of the corolla; *germen* inferior, scarcely ribbed; *style* as long as the tube of the corolla; *stigma* thick, bifid, exerted; the *berry* is orange colored, about the size of a pigeon's egg, and the pulp is used for dyeing yellow in China and Japan. It flowers in July and August.

*Gardenia radicans.* Rooting Gardenia, or Cape Jasmine. This is a shrubby plant, from one to two feet high, unarmed: stems radi-



*Gardenia florida.*



cant ; leaves lanceolate ; flowers solitary, almost terminal, and nearly sessile, salver-shaped ; segments of the calyx vertical, linear-subulate, equal in length to the tube of the corolla ; flowers very fragrant. It is a native of Japan, and cultivated at the Cape of Good Hope, the East and West Indies, and the southern parts of the United States. It flowers from March till June.

*Gardenia costata.* Ribbed-fruited Gardenia. This is a tree about twenty feet high, arboreous, unarmed ; leaves cuneiform-oblong, smooth, and ribbed ; flowers terminal, salver-shaped ; calycine segments resiniferous, caducous ; berry drupaceous, oval, five-ribbed, one-celled, containing a two-valved shell ; placentas two, opposite ; flowers large, white, sweet-scented, the tube being above three inches long, and the border above four inches in diameter ; limb five-parted ; berry yellow, containing a soft and rather fœtid pulp. It is a native of the mountainous part of India ; but is now spread over most of Europe, and is cultivated in green-houses in the United States.

*Gardenia carinata.* Keeled Gardenia. This is a tree unarmed, arboreous, resinous on the younger parts ; leaves elliptic-obovate, ribbed, villous beneath ; flowers terminal, solitary ; limb of the calyx truncate, broad, obscurely five-lobed, and five-keeled ; tube of corolla very long ; limb six-eight-lobed ; flowers smaller than those of *Gardenia costata*, at first snow white, but afterwards yellow, becoming, when dry, a beautiful orange color ; fruit exactly like the previous species. It is a native of Asia, where it grows on the hills.

*Gardenia arborea.* Arboreous Gardenia. This is a good sized tree, arboreous, unarmed ; leaves ovate-oblong ; flowers terminal, almost sessile, usually by threes ; corolla with a filiform tube, and a five-parted limb ; berry drupaceous, smooth, containing a four or five-valved shell ; the leaves are deciduous during the cold season, and the shrub continues naked till the hot season is pretty far advanced. From the buds and wounds made in the bark there exudes a very beautiful yellow resin, like that from *Gardenia gummifera*. The size, number, fragrance, mutability, and beauty of the flowers of this species, render

it more deserving of a place in the garden than any other species.—The natives eat the fruit when ripe. It is a native of the East Indies among the Circars.

*Gardenia latifolia.* Broad leaved Gardenia. This is a shrub from ten to twelve feet high, arboreous, unarmed; leaves almost sessile, ovate or obovate; in the axils of the veins beneath are hollow glands with hairy margins; flowers terminal, from one to four together, almost sessile, salver-shaped from seven to eleven parted; limb of the calyx short, subdentate; berry drupaceous, round, one-celled, five-valved; flowers very large and very fragrant—when they first open in the morning white, gradually growing yellow before night; berry about the size of a pullet's egg, crowned by a small part only of the tube of the calyx; leaves opposite or three in a whorl. It is a native of the East Indies on barren rocky hills, in the Circars and Cormatic.

*Gardenia lucida.* Shining-leaved Gardenia. This is a middling sized tree, subarborescent, unarmed, with resinous buds; leaves oblong, smooth, shining, with lateral simple parallel veins; flowers almost terminal, solitary, on short pedicels; lobes of the calyx five, subulate, three times shorter than the tube of the corolla; berry drupaceous, containing a two-valved shell; leaves about six inches long and three broad; peduncles clavate, one to one and a half inch long; flowers large, purple-white, fragrant, five-parted. Native of Chittagong and various other parts of India, and of the Island of Luzon.

*Gardenia clusiæfolia.* Clusia-leaved Gardenia. This is a shrub about five feet in height, unarmed, glabrous; leaves obovate, retuse and somewhat emarginate, coriaceous, on short petioles; peduncles almost terminal, racemose; flowers on long pedicels; limb of the calyx short, five-toothed; corolla salver-shaped, with five linear acute segments, which are about the length of the tube; flowers white, sweet-scented, with a greenish tube; berry large, oval; seeds imbedded in the pulp. The internal structure of the berry is unknown. It differs from Gardenia in the shape of the stigma and disposition of the flowers. Native of the Bahama Islands, where it is called by the inhabitants Seven Years' Apple.

*Gardenia tubifera*. Tube-bearing Gardenia. This is a shrub rising from ten to fifteen feet in height, subarboreous, unarmed; leaves cunate-oblong, petiolate, slightly scabrous above and pubescent beneath; drupe round, uneven, crowned by the very long truncate calycine tube; leaves five to six inches long; drupe containing a putamen which is divisible into eight valves; flowers unknown. All the young parts of the tree are resinous. Native of the East Indies, in Singapore.

*Gardenia anisophylla*. Unequal-leaved Gardenia. This species is also a tree, rising from thirty to sixty feet in height, arboreous and unarmed; leaves elliptic, those opposite each other unequal, densely clothed with villi; stipules concrete at the base, bearded inside; corymbs axillary, villous; limb of calyx five-toothed; tube of corolla short; drupe oval, villous; the leaves are also tapering to the base, six to twelve inches long; flowers rather small, white, by threes, villous outside; limb five-parted; stigmas clavate, two-lobed; drupe size of a walnut, containing a two-valved putamen. Native of the Islands of Pulo-Penang and Singapore, on the hills.

*Gardenia cornifolia*. Dogwood-leaved Gardenia. This is a shrub about five feet high, shrubby and spinose; branches glabrous; leaves acuminate, ovate, rather coriaceous, and are, as well as the branches, downy; flowers white, sweet-scented, six to eight together at the tops of the branches, sessile, subcorymbose, each furnished with a bifid involucrel; calyx four-toothed; corolla villose on the outside, with a terete tube, and a spreading four-parted limb. The ovarium and fruit being unknown, it is doubtful whether it belongs to the genus. Native of the temperate parts of New Granada, near Gaudua.

There are about forty species more belonging to the genus, most of which, however, are of but little value.

*Propagation and Culture*. All the species of *Gardenia* bear elegant sweet-scented flowers, which in most of the species are large. They are generally free flowerers. The soil best suited for them is a mixture of loam, peat, and sand. The stone species thrive best in a moist heat; and cuttings of all root readily if taken off while not too

ripe, planted in a pot of sand, which should be plunged in a moist heat under a hand-glass. The double flowered varieties of *Gardenia florida*, and *Gardenia radicans*, are cultivated to a considerable extent, under the name of Cape Jasmine, for the beauty and fragrance of their flowers; the best manner of getting these to bloom freely, is to set them in a close frame, on a little bottom heat, in spring, but the pots should not be plunged; and in winter they may be set in the greenhouse.







*Justicia carnea*

## NAT. ORDER.

### *Acanthacea.*

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JUSTICIA CARNEA.

FLESH-COLORED JUSTICIA.

*Class II.* DIANDRIA.      *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, four or five divided. *Corolla*, monopetalous. *Limb*, ringent, two-lipped. *Stamens*, two, both bearing anthers. *Ovarium*, two-celled, seated in the disk. *Style*, one. *Stigma*, two-lobed, rarely divided. *Capsule*, two-celled. *Cells*, two, many seeded.

*Spe. Char.* *Leaves*, opposite, rarely in fours. *Flowers*, usually opposite, in spikes, sometimes alternate, with three bracteas.

THE *stem* of this plant is from four to five feet high, branched, the branches four-sided; *leaves* opposite, ample, on long petioles, ovate, attenuated at the base, sharply acuminate at the extremity, glabrous, entire, reticulated, gradually smaller upwards, where they pass into *bracteas*, which are very numerous, the outer ones ovate-lanceolate, inner ones small and linear; *corolla* very long and of a beautiful rose color, two-lipped, upper lip erect, entire, lower one revolute, three-toothed; *anthers* deep purple. Native of Florida.

*Medical Properties and Uses.* This plant has, when rubbed, a strong and not unpleasant smell, and is, after being roasted, prescribed in India in cases of chronic rheumatism attended with swelling in the joints. *Justicia biflora* is used in Egypt for poultices. *Justicia Ec-bolium* is said to be diuretic. The flowers, leaves, and root of *Justicia Adhatoda* are supposed to possess antispasmodic qualities. They are bitterish and subaromatic. *Justicia pectoralis*, boiled in sugar, yields a sweet-scented syrup which is considered in Jamaica a stomachic.

## NAT. ORDER.

### *Compositæ.*

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SILPHIUM TEREBINTHACEUM.

STATELY SILPHIUM.

*Class XIX.* SYNGENESIA. *Order IV.* POLYGAMIA-NECESSARIA.

*Gen. Char.* *Calyx*, common, ovate. *Scales*, ovate-oblong. *Corolla*, compound. *Stamens*, hermaphrodite. *Filaments*, five, capillary, very short.

*Spe. Char.* *Anthers*, cylindrical, tubular. *Germen*, round, slender. *Style*, filiform, very long, villose. *Stigma*, simple.

This is a perennial *plant*; *stem* herbaceous, four to six feet in height, glabrous, striated, branched, erect; lower *leaves* ample, some of them a foot long, cordate, coriaceous, acute, smooth above, beneath and at the margin beset with numerous short bristles, each seated on a small white callous point; *petiole* very long, sometimes measuring a foot or a foot and a half, below dilated into a sheathing base; the *leaves* gradually become smaller and narrower and less stalked upwards, and among the flower-stalks they pass into bracteas about an inch long, often spreading, and with their margins involute; *flowers* paniculate, large, handsome, yellow; *involucre* globose, of several roundish, green, closely imbricated, glabrous scales, innermost ones smaller and longer; *corolla* of the *ray* numerous, ligulate, entire at the apex, each bearing a pistil: *segments* of the *style* long, filiform; *florets* of the *disk* each subtended by a blunt, linear-oblong scale; *corolla* yellow; *anthers* protruded, dark brown; *style* linear, filiform, entire; *germen* cylindrical, slightly downy, abortive.

This is a fine and elegant species of *Silphium*, to which the specific name seems to be applied on account of a terebinthine gum,



*Sulphium terebin.*



which exudes from the plant, as in the *Silphium gummiferum* of Mr. ELLIOTT, and probably in other species of the genus, during the hot summers which are experienced in their native climates. But in the northern and eastern States, no such exudation is observable, though the sap yields a peculiar odor. It is a stately plant, remarkable for the great size of its lower leaves; and though inhabiting the western mountains of Carolina and Georgia, and the prairies of St. Louis, on the Missouri, it bears the open air of New England, and other northern States, remarkably well—flowering in the autumnal month. There are three other species, natives of this country, viz :

*Silphium laciniatum*. Jagged-leaved Silphium. This has a perennial root; the stem rises from eight to fourteen feet in height, from one to two inches in thickness, quite simple, smooth below, above rugged, with brown tubercles and white, spreading hairs, round; the leaves petioled, two feet in length and a foot in breadth, embracing at the base, pinnatifid; segments on each side four or five, distant narrow, tooth sinuate, rugged, with very solid ribs raised on both sides; margin of the upper leaves purplish; the calyx of ten scales, ending in large awl-shaped spines; the petals of the ray thirty, length of the calyx, with a bifid, slender style; the florets of the disk yellow, many, separated by chaffs, attenuated at the base, with a simple style. It is a native of North America, flowering from July till September.

*Silphium asteriscus*. Hairy-stalked Silphium. This species has a perennial root; the stem four or five feet high, thick, solid, set with prickly hairs, and having many purple spots; the lower leaves alternate—upper opposite and sessile, rough, about two inches long, and an inch broad near the base, having a few slight indentures on their edges; the upper part of the stem divides into five or six small branches, terminated by yellow radiated flowers like those of the perennial Sun-flower, but smaller, having generally nine florets in the ray. Native of North America, flowering from July to September.

*Silphium trifoliatum*. Three-leaved Silphium. This species has a perennial and woody root; the stems annual, rising about five feet

high or more in good soil, of a purplish color, and branching towards the apex ; the leaves oblong, rough, having some sharp teeth on the edges—they are from three to four inches long, and almost two broad—towards the bottom of the stem they stand by fours at each joint, higher up they are by threes, and at the top by pairs, sitting close to the stems ; the flowers stand upon rather long peduncles, which are solitary. This plant is a native of most parts of North America, from Maine to Georgia, and produces flowers from July till October.

*Propagation and Culture.* This species of plants are all readily increased by parting the roots, and planting them out in the autumn or spring in proper situations, which is usually done in the borders or clumps. They may also be raised by planting the slips in the same manner. If placed in a bed they should be set from one to two feet apart in rows, and the rows from two and a half to three feet apart, after which they should be managed as the perennial Sun-flower.—They afford a beautiful and pleasing effect among other perennial plants in the summer season.







*Diplopopsus inco.*

## NAT. ORDER.

*Compositæ.*

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DIPLOPAPPUS INCANUS.

HOARY DIPLOPAPPUS.

*Class XIX.* SYNGENESIA. *Order II.* SUPERFLUA.

*Gen. Char.* *Sepals*, four to five. *Petals*, four to five. *Stamens*, generally indefinite. *Anthers* two-celled. *Ovarium*, single, from four to ten carpels. *Style*, one. *Stigmas*, as many as the carpels.

*Sp. Char.* *Fruit*, dry, of several cells. *Seeds*, numerous. *Embryo*, erect. *Flowers*, axillary. *Leaves*, simple, stipulate, toothed.

THE *stems* of this plant are very much branched, and, as well as the foliage, everywhere clothed with short, dense, glaucous pubescence, occasioning a hoary appearance, which suggested the specific name; the *leaves* are scattered, about an inch long, linear-lanceolate, entire, patent or recurved, gradually becoming smaller on the ultimate branches, which are terminated by a large single *flower*; the *involucre* is almost globose; the *scales* numerous, linear, squarrose, slightly glandular; the *ray* is composed of many florets, and of a bright purple color; *disk* of a deep yellow.

This genus is very nearly allied to the *Aster*, being only distinguished from it by the double rows of the pappus, whence its name. It includes, however, plants with yellow as well as purple flowers, a color never known in *Aster*. Few of the Asteroid family are more worthy of cultivation than the present, bearing as it does large beautiful flowers, of peculiar bright color, and continuing to blossom in the open border till late in October. It is a native of California, where it was discovered by Mr. Douglass.

## NAT. ORDER.

### *Sarraceniæ.*

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SARRACENIA RUBRA.

RED SIDE-SADDLE.

*Class XIII.* POLYANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, of five permanent sepals. *Leaflets*, ovate. *Corolla*, five, parted. *Claws*, ovate-oblong, straight.

*Spe. Char.* *Stamens*, numerous. *Anthers*, simple. *Style*, cylindrical, very short. *Stigmas*, peltate. *Seeds*, numerous.

THIS small *plant* rises from one to two feet high; the *calyx* is composed of five permanent sepals, which are concave at the base, and furnished with a three-leaved involucre just under it; *corolla* of five petals, which are contracted at the base, and unquiculate; *stamens*, numerous, hypogynous, and closely packed together; *filaments*, shortish; *anthers*, fixed by their back, oblong, two-celled, opening upwards from the base, hardly to the apex; *ovary*, one large globose, with five longitudinal furrows; *style*, columnar, crowned by a broad convex, leafy, five-angled stigma; *capsule*, globose, crowned by the permanent style and stigma, five-lobed, five-celled, five-valved, many seeded, valves separating from the apex; *placentas*, five, one in each cell closely covered with seeds, progressing from the central axis; *seeds*, small, minutely tubercled; *embryo*, cylindrical, cleft at one extremity into two cotyledons, placed at the base of a copious waxy-granular albumen, with the radicle pointing towards the hilum; the *seeds* are keeled on their under side, inserted by their narrowest point upon a large club-shaped, stipitate receptacle, which stands out from the central column or axis into the middle of each cell; the *valves* of the capsule open from above between the cells, whose dissepiments



1. *Sarracenia rubra*. 2. *Barosma cremulata*.



are attached to the centre of each valve, and separate from the central axis of the column; *scapes*, always one-flowered; *flowers*, large, nodding; greenish-yellow or dark purple. These well known singular plants, are inhabitants of the swamps of North America, remarkable for the singular form of their leaves, which are tubular and hold water, and some species have lids or covers, which it is alleged shrink and close over the mouth, so as to prevent the exhalation of the water. In dry weather birds resort to them for drink. This order differs chiefly from *Papaveraceæ*, and *Nymphiaceæ*, in having a broad, peltate, leafy stigma, but it is still nearer to the former than the latter, in the capsules being furnished with intervalvular placentas.

*Sarracenia flava*. Yellow side-saddle flower. In this species the leaves rise nearly three feet high, small at the bottom, but widening gradually near the top; they are hollow, and arched over the mouth like a friar's cowl; the flowers grow on naked pedicels, rising from the root to the height of three feet, and are of a green color. It is a native of North America, in open swamps, from Virginia to Florida. This is the tallest growing species; the leaves are often three feet long. Flowers in June and July.

*Sarracenia purpurea*. Purple side-saddle flower. This species has a strong fibrous root, which strikes deep into the soft earth, from which arise five, six, or seven leaves, in proportion to the strength of the plant; these are about five or six inches long, hollow like a pitcher, narrow at their base, but swell out large at the top; their outer sides are rounded, but on their inner side they are a little compressed, and have a broad leafy border running longitudinally the whole length of the tube; and to the rounded part of the leaf there is on the top a large appendage or ear, standing erect, of a brownish color; this surrounds the outside of the leaves; it is eared at both ends, and waved round the border; from the centre of the root, between the leaves, arises a strong, round, naked foot-stalk, about a foot high, sustaining one nodding flower at the top; the leaflets of the upper calyx are obtuse, and bent over the corolla, so as to cover the inside of it; they

are of a purple color on the outside, but green within, only having purple edges ; the petals are of a purple color, and dished somewhat like a spoon. It is a native of most parts of North America, in swampy places about Quebec, Lake Huron, and probably common throughout Canada, and as far north as Bears Lake, and as far south as Carolina.

*Sarracenia variolaris.* Chequered side-saddle flower. This is a small dwarfish looking plant, rising not more than a foot high ; leaves elongated, their tube spotted on the back, ending in a short arched appendage ; flowers yellow ; the transparent spots on the back of the leaf distinguishes this species readily from the preceding, with which it has often been confounded. It is a native of North America, in open swamps on a sandy soil, from Massachusetts to Florida. It may be found in great abundance near the base of Great Hills in the town of Leverett, Franklin county, Mass., where I have seen it blossom from May till late in July.

*Propagation and Culture.* These singular and handsome plants are very desirable objects in the collections of the admirers of nature. They are all inhabitants of the swamps of this country, but will not stand in the open air of Canada or England. They should be kept in pots filled with turfy peat at the bottom, and the upper part with *spagnum* or water-moss, in which the plants must be set and then placed in pans of water ; they succeed best in frames in a shady situation or in a stove. They also succeed very well if set in *spagnum* in a frame without pots, but they always will require to be kept rather moist and well shaded. In this last way the sashes require to be almost kept shut. There is no way, as yet, known by which they can be increased except by dividing the plants at the root. There are many of these plants cultivated in England as a curiosity, but are all exported from this country.



## NAT. ORDER.

### *Rutaceæ.*

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BAROSMA CRENULATA.

CRENULATED BUCKU.

*Class V.* PENTANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Calyx*, five-cleft. *Disk*, covering the bottom of the calyx. *Petals*, five, with short claws. *Filaments*, ten. *Style*, length of the petals.

*Spe. Char.* *Leaves*, opposite, ovate, acute, dotted. *Pedicels*, solitary, one-flowered. *Flowers*, white.

THE plant from which this description and figure are taken, is an upright *shrub*, between two and three feet in height, with twiggy *branches* of a brownish purple tinge; *leaves* decussate, spreading, about an inch long, oval-lanceolate, on very short *petioles*, very obtuse, delicately and minutely crenated, quite glabrous, rigid, darkish-green, and quite smooth above, with a few very obscure oblique *nerres*, beneath paler, dotted with glands which are scarcely pellucid, while at every crenature is a conspicuous pellucid gland; there is also a narrow, pellucid margin round the whole leaf; *peduncles* about as long as the leaf, axillary and terminal, chiefly from the superior leaves, single-flowered, often (but not always) bearing a pair of small opposite leaves, or bractees, above the middle, each of which in my native specimens sometimes bears a flower in its axil; beneath the *calyx* are two or three pairs of small imbricated bractees; *calyx* of five ovate-acuminate *leaflets*, green, tinged with purple; *corolla* of five ovate *petals*, purple in the bud, blush-colored when fully expanded: *stamens* five, at first erect, then recurved, about as long as the petals; *filaments* slightly villous; *anthers* oblong; *barren filaments*, five, lanceolate, white, rather

villous, tipped with a gland, the lower part erect, the upper half spreading; *hypogyous disk*, an annular, dark-green gland; *germen* very short, abortive, crowned with five lanceolate, fleshy, slightly spreading appendages; *style*, filiform, curved; *stigma*, minute.

There are, perhaps, few plants that have been long cultivated in our collections, which are less understood and which require more illustration by figures, than the various species of the old Genus *Diosma* of the Cape of Good Hope, and which now constitutes a section of the Natural Order *Rutaceæ*. The individual now figured is an old inhabitant of the green-houses, both of this country and England, especially the latter, where it has gone under various names, such as *Diosma crenata*, *Diosma latifolia*, *Diosma odorata*, &c. Wendland figured it under the name of *Purapetalifera odorata* in his collections, but he made it, afterwards, the variety of *Diosma serratifolia*, and has referred to the same variety, the *Diosma crenata*, of Linnæus, &c.—But surely if it can be proved to be the *Diosma crenulata* (not *crenata*) of Linnæus, that name ought to be adopted in preference to any others; and Linnæus' description does appear to be so characteristic, that for my own part I have no hesitation in preferring the name. My opinion is further strengthened by a remark of Sir I. E. Smith, in Rees's Cyclopædia, where he notices the great affinity of the *Diosma serratifolia*, (a supposed Australian species,) with the *Diosma crenulata* of Linnæus. Of the true *Diosma serratifolia*, I have only seen cultivated specimens; they have much longer, narrower, and acuminate leaves, marked with raised glands on the upper surface, and three distinct nerves; they have decidedly serrated leaves, and always pure white flowers; so that I have no hesitation in keeping these two distinct. If the above be correct, I see no impropriety in referring to our *Burosmia crenulata*, the valuable properties of which, as an internal medicine, and as an outward application, for healing lacerated flesh, are well and highly spoken of by both ancient and modern writers.

Lastly, I would mention that the *Bucku* of our Pharmacopæias, which has lately obtained so much celebrity as a sudorific, diuretic,

and tonic ; such at least as I have examined and prescribed from our druggists, undoubtedly belongs to the present species. Hence, though others of the *Diosma* groupe may contain similar properties, abounding, as they all do, in a strong aromatic odor, and glands filled with essential oil, yet by the Hottentots and those who gather *Bucku* for the European and American markets, preference is given to our *Barosma crenulata*. The scent seems to me to be as powerful as that of any other of the tribe, but at the same time much more agreeable, and more resembling that of some mints.

*Barosma pulchella*. Neat Barosma. This shrub grows from one to three feet in height ; leaves crowded, ovate, quite smooth, with thickened, crenate-glandular margins ; peduncles axillary, usually solitary, exceeding the leaves ; flowers pale-red. The Hottentots use the leaves of this plant, dried and powdered, under the name of *Bucku*, to mix with the greece with which they anoint themselves. It gives them so rank an odor, that Thunberg says he could not bear the smell of the men who drove his wagon. It is a native of the Cape of Good Hope, and flowers from September till February

*Propagation and Culture*. This is a genus of pretty little shrubs, which thrive best in a mixture of sand, peat, and a little turfy loam ; and cuttings taken from ripened wood, and planted in a pot of sand, with a bell-glass placed over them, will strike root readily and thrive well.

## NAT. ORDER.

*Cactææ.*

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OPUNTIA BRASILIENSIS. BRAZILIAN PRICKLY-PEAR.

*Class XI.* ICOSANDRIA. *Order I.* MONOGYNIA.

*Gen. Char.* *Sepals*, numerous. *Stamens*, numerous, shorter than the petals. *Style*, cylindrical. *Stigmas*, many.

*Spe. Char.* *Berry*, ovate. *Petals*, connate. *Flowers*, red. *Joints*, obovate.

THE peculiar habit and mode of growth at once distinguish this species. It rises with a perfectly straight, erect, slender but firm and stiff, round *stem*, to a height of from ten to twenty, or even thirty feet, very gradually tapering to a point from a diameter of two to six inches at the base, and furnished all the way up with short, mostly horizontal or declining branches, spreading round on all sides, and gradually becoming shorter upwards; the whole *plant* resembles a straight taper; pole, artificially dressed up with branches; main *stem* perfectly round, continuous and straight throughout; *branches* horizontal, or declining, short; the ultimate *joints* are obovate, and resemble leaves in appearance and thickness, more than in any other described species of *Opuntia*; being only about twice as thick as those of *Cereus phyllanthus*, or *phyllanthoides*, but stiffer; the whole *plant* is a bright green inclining to yellow, especially in young or sickly plants; the lower part of the *stem* only is brownish ash-colored; the *flowers* open in long succession, being abundantly produced all over the plant from the prominent parts of the edges of the terminal joints; they are bright lemon-yellow, middle-sized; when expanded, from an inch to an inch and a half in diameter; and without tube; *petals* imbricated, sub-



*Opuntia Brasiliensis.*



patent ; the outer ones short, thick, and fleshy, the inner from half an inch to an inch long ; *style*, longer than the *stamens*, pale yellow, thickish, swollen downwards, solid, or with only a thread-like, central hollow towards the top ; *stigma* of generally five, sometimes four, pale-yellow, finally ferruginous bordered, erect, subconnivant, ovate lobes ; *filaments* and *anthers* pale ; *germen* half or three-quarters of an inch long, cup-shaped at top, uneven, bearing a minute, fleshy, ovate-globose, yellowish, deciduous leaf at the summit of each irregular tubercle, inside of which is a fascicle of short, minute, chestnut bristles ; a vertical section discovers the central, subtriangular, cell-like ovarium, containing from one to five ovules ; *fruit* subglobose, approaching to oval more or less, with the cup-shaped hollow at the top obsolete, so as to be often truncate, from an inch to an inch and a half in diameter, the color of a Magnum-bonum Plum ; perfectly even, but furnished with short, dense fascicles, tufts, or branches, of rich chestnut-colored bristles, contrasting beautifully with the delicate transparent yellow of the thin, smooth skin ; a few of these are twice as long as the rest ; all are extremely deciduous, brittle, and acute, so as to render the examination of the fruit more than ordinarily troublesome. It is hardly possible to touch the plant when in fructification without getting the skin or clothes full of these bristles ; inside of the *fruit* pale yellowish-white, containing in the middle from one to four, much flattened, rather large round seeds, three or four lines in diameter, enveloped in a singular, dense, cottony mass of fibres ; the fruit is rather agreeable, juicy, with a fine acid, somewhat resembling an indifferent, hard-fleshed, or unripe Plum, with a smell and slight flavor like the leaf-stalks of garden Rhubarb. Its principal flowering season is May and June.

## NAT. ORDER.

### *Saxifrageæ.*

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SAXIFRAGA LIGULATA.

FRINGED SAXIFRAGE.

*Class A.* DECANDRIA. *Order II.* DIGYNIA.

*Gen. Char.* *Calyx*, five, parted. *Petals*, five, on short claws. *Stamens*, ten. *Capsules*, adnate to the calyx. *Seeds*, numerous.

*Spe. Char.* *Leaves*, obovate, subcordate. *Flowers*, pale-red, almost white.

This *plant* has a thick woody *root*, bearing several large spreading, bright-green, broadly ovate *leaves*, beautifully ciliated at the margin, and frequently waved there also; the *petiole* is short, thick, bearing a long, erect, ciliated sheath or ligule (whence the specific name) just above where it is set on the stem; *scales* five or six inches long, with one or two *bracteas*, and terminated by a cymose *panicle* of large, handsome, white flowers, frequently tinged with rose-color; *calyx* obtuse and red at the base, and greener upwards, and five-cleft; *corolla* of five, obovate *petals*, with short claws; *stamens* ten; *filaments* erect, alternately shorter, rose-colored; *anthers* reddish purple; *germen* free; *styles* long, erect; *stigmas* obtuse.

*Saxifraga petraea.* Rock Saxifraga. This plant grows almost flat upon the ground, only rising from three to six inches in height; the leaves are radical and palmately five-lobed; cauline ones tripartite and cut; peduncles are very long, one-flowered; calycine segments linear, acute; petals obovate, truncate at the apex and emarginate, twice the length of the calyx; the plant is diffusely branched, and furnished with glanduliferous hairs; stems erect, branched at the base; branches elongated fastigiated; radical leaves on long petioles, some-





*Saxifraga ligulata.*



what reniform at the base; lobes obtuse; cauline leaves all petiolate; upper cauline leaves undivided, acute at both ends; peduncles and calyxes clothed with viscid down; flowers white, much larger than those in many of the other species; petals triple nerved; nerves simple. It is a native of Mount Baldo, among broken rocks, and of the Alps of Corinthia; also of North America, in alpine rivulets on the Rocky Mountains. It flowers in April and May.

*Saxifraga hypnoides*. Hypnum Saxifrage. This plant rises only from three to eight inches high, gemmiferous; surculi very long, pro-cumbent; radical leaves five or three parted; surculine leaves simple, linear, stiff, ciliated, mucronately awned, furnished with ovate, acute, buds in the axils; calycine segments triangularly ovate, awned; petals roundish, obovate, white, triple-nerved, rose-colored on the outside at the apex; nerves simple; the herb is densely tufted before flowering, quite glabrous, but afterwards becoming loose, surculose, and villous; from two to four flowered. This is a native of the Alps of Switzerland, Austria, and Pyrenees. In Britain, in the north of England, Scotland, and North Wales, in both the Upper and Lower Canadas, on high rocky mountains; as well as on limestone rocks, walls, and roofs in less elevated situations, abundantly. It flowers in April.

*Medical Properties and Uses*. Linnæus describes the taste of this plant to be acrid and pungent, which we have not been able to discover; neither the turbercles of the root, nor the leaves manifest to the organs of taste any quality likely to be of medicinal use, and therefore, though these species of Saxifrage have been long employed as a popular remedy in nephritic and gravelly disorders, yet we do not find either from its sensible qualities, or from any published instances of its efficacy, that it deserves a place in the *Materia Medica*.

The superstitious doctrine of *Signatures* suggested the use of the root, which is a good example of what Linnæus has termed *radix granulata*. The bulbs or tubercles of such roots answer an important purpose in vegetation, by supplying the plants with nourishment and moisture, and thereby enabling them to resist the effects of that

drought to which the dry soils they inhabit peculiarly expose them.

*Sedum Telephium*, one of the species, is admitted in the *Materia Medica* in the foreign pharmacopœias; it has not the acrid characters of the various species here figured, but on the contrary is bland and mucilaginous. It is said to be diuretic, and, according to Dr. Withering, is used with success to cure the piles. *Sempervivum tectorum* (common house-leek) which is nearly allied to the *Telephium* in botanical affinity, likewise abounds with a mucilaginous juice, said to be an useful application to burns, creeping ulcers, and in apthous cases. *Cactus Opuntia* (common Indian fig) and *Portulaca oleracea* (garden purslane) both of this natural order, afford a similar juice, which also has been applied to medical purposes.

*Propagation and Culture.* *Saxifraga* is a most extensive genus of pretty alpine plants, the greater part of which are well adapted for rock-work, or to be grown on the sides of naked banks to hide the surface. Many of the more rare and tender kinds require to be grown in pots, in light sandy soil, and placed among other alpine plants, so that they may be protected by a frame in winter. The species belonging to sections *Micranthes* and *Hirculus* grow best in a peat soil, which should be kept rather moist. The species belonging to the section *Porphyreon* are so very pretty little plants as to be worth growing in pots for ornaments, being clothed with elegant little red flowers early in the spring. A mixture of peat and sand suits them well. The varieties are all well suited to ornament the borders of flower-gardens.











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