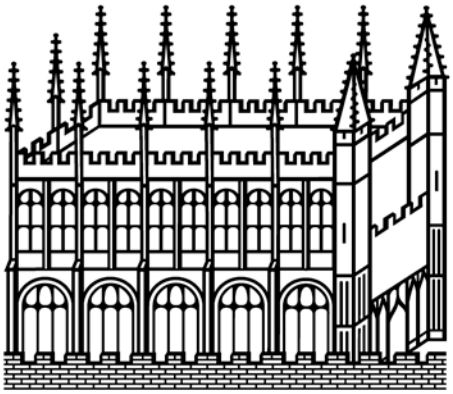

FAMILIAR GARDEN FLOWERS

BY

SHIRLEY HIBBERD, F.R.H.S.

WITH

COLOURED PLATES

BY

F. EDWARD HULME,
F.L.S., F.S.A.

CASSELL & COMPANY, LIMITED:
LONDON, PARIS & NEW YORK.

FAMILIAR
GARDEN FLOWERS.

FIGURED BY

EDWARD HULME, F.L.S., F.S.A.;

AND DESCRIBED BY

SHIRLEY HIBBERD.

"In every flower that blooms around,
Some pleasing emblem we may trace:
Young love is in the myrtle found,
And memory in the pansy's grace;
Peace in the olive branch we see,
Hope in the half-shut iris glows,
In the bright laurel victory,
And lovely woman in the rose."

Fourth Series.

WITH COLOURED PLATES.

CASSELL & COMPANY, LIMITED:

LONDON, PARIS, NEW YORK & MELBOURNE.

PREFACE.

ANOTHER bouquet! Yes, there are four seasons at least in the year, and from the proper flowery point of view as many seasons as days, nay, as hours; for Nature rests not, and every moment witnesses a new creation of life and beauty. We must have another bouquet, and again perhaps another! And if we stay our course in the Fifth Series it will be because our hands are weary, not because the garden is exhausted; for we have but made a beginning even now in collecting the emblems of blessedness with which we are engirt. The commonness of the subjects figured and discoursed upon in these pages will commend them more forcibly to discreet souls than would any possible rarity and remoteness. The blue sky and the green earth cannot be monopolised; they mix with our breath and blood and every-day thoughts, and the poorest take their share from the same exhaustless fountains as the wealthy. We will not, indeed, speak disdainfully of the curiosities Queen Flora keeps in her cabinet; but we claim for our "familiar" flowers that their true value is to be found in their plentifulness, accessibility, and close association with our customs, pastimes, and the whole of our daily life, in all which the rarities from far-off lands have no part, and, therefore, touch no homely feeling or tender sentiment.

"Sweet is all the land about and all the flowers that blow.

And the story of their sweetness is chiefly what concerns us here.

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SYNOPSIS.

CALCEOLARIA, from *calceolus,* a slipper, the shape of the flower suggesting the name. N.O., *Scrophulariaceæ,* or Figworts. LINNÆAN: 2, *Diandria;* 1, *Monogynia.*—The plants of this order are herbs or shrubs, varying in leafage and in the disposition of the flowers. The calyx remains after the corolla has fallen; the latter is irregular, variable, and sometimes two-lipped. The fruit is a two-celled capsule, usually of a dry nature, but occasionally somewhat fleshy, opening variously. The order is of great extent, and one of the most difficult to study in detail. Many of the species have a stigma composed of two plates, one placed next the back and the other next the front of the flower. When the corolla first expands, these plates stand apart, but when touched they collapse suddenly and with some force. A good type flower of the order is the foxglove; the calceolaria is also strongly typical; but salpiglossis, which is included in the order, illustrates the borderland where it appears to merge into the nightshades. The English garden is rich in plants of the figwort family, for it includes not only the plants above mentioned, but also the schizanthus, verbascum, antirrhinum, pentstemon, mimulus, and many others. It is poor in plants of utility, and the few that are of service to man are mostly of an acrid or bitter quality, and employed rather as medicines than as food. A pasture herb called *Melampyrum pratense* is reputed to be serviceable, not only in promoting the richness of milk, but also as contributing to the butter a fine yellow colour. The calceolaria which we so prize for the adornment of the greenhouse with its splendid flowers is valued in Chili because of the colouring property of its roots, which are employed in dyeing woollen cloths crimson.

ARUM, from the Egyptian *aron,* the ancient name of the plant. N.O., *Araceæ,* or Arads. LINNÆAN: 21, *Monœcia;* 9, *Polyandria.*—The plants of this order are easily recognised both by their leaves and flowers. They are always herbaceous, many are of lowly stature, as the "lords and ladies" of the hedgerow; others are rampant climbers, as the philodendron of the tropics, which clambers over trees and displays huge leaves and aërial roots high in the air amongst the branches. The sheathing of the leaves is a leading character, but a more striking sign of the order is the inflorescence, which consists of a spathe enclosing a spadix on which the several flowers are situated. In the plate at page 5 the spathe is the "lily" proper, a mere

expansion of the flower-stem, and within it is seen the tip of the spadix which bears two sorts of flowers, those at the base being fruitful, those above supplying the fertilising pollen from their stamens. Calyx and corolla are unknown in this order, but the spathe or "floral leaf" is often very conspicuous and characteristic. Although a very acrid and often dangerous race of plants, they contribute in a material degree to the service of man. The cuckoo pint or arum of the hedgerow is the source of the starchy substance known as Portland sago, and the roots of several tropical species are cooked as yams. They are, however, dangerous, and to chew one leaf of the common cuckoo pint will be to insure excruciating pains and some degree of danger. The porcupines of the Cape eat the roots of the trumpet lily, but they are so acrid that man can make no use of them.

PRIMULA.—See "Polyanthus," First Series, p. ix.

SCILLA.—See "Lilium," First Series, p. vii.

PASSIFLORA, the Passion Flower, from *passio,* suffering, and *flos,* a flower. N.O., *Passifloraceæ,* or Passionworts. LINNÆAN: 16, *Monadelphia;* 2, *Pentandria.*—A noble order of herbaceous or half-shrubby plants, mostly tropical, climbing, with alternate leaves and hermaphrodite flowers of peculiar construction and often distinguished by resplendent colouring. The conspicuous outer portion of the flower of the passiflora, which, at a first glance, may be regarded as the corolla, is really the calyx, but being coloured, it may for a time deceive one. The narrow petals that form a ring of rays constitute the true corolla. In some species, as, for example, *Passiflora actinia,* the petals are furnished with a series of threads. The stamens and stigmas are conspicuous in the centre and declare themselves as such. The order includes not only the true passion flowers, but the tacsonias and some less distinctive genera. The best known of all these is Tacsonia Van Volxemi, a grand greenhouse climber producing crimson flowers. Amongst the passifloras the best known is *P. cœrulea,* a hardy plant in all the southern parts of this country, and much grown in the suburbs of London. *P. quadrangularis,* or granadilla, produces a large fruit, full of an agreeable yellowish pulp that is eaten with wine and sugar in Jamaica. *P. edulis* also produces an edible fruit. The possessor of a spacious stove house may find much to interest him in the cultivation of passifloras, but for general purposes the common blue-flowered hardy species is sufficient.

SILENE, from *sialon,* saliva, from the gummy exudation by which flies are entrapped, and which explains the familiar name "Catchfly." N.O., *Caryophyllaceæ,* or Cloveworts. LINNÆAN: 10, *Decandria;* 3, *Trigynia.*—The section of cloveworts to which the silenes belong may usefully remind the garden botanist that the pretty chick-

weed or the stellaria, the spurrey or spergula, the mouse-ear or cerastium, the soapwort or saponaria, the campion or agrostemma and coronaria, are all of the same family. That the carnations and pinks are of the kindred goes without saying: they are the types of the order and among the most prized of garden flowers. The characters of this order are simple and easily comprehended, so that it affords a good subject for the study of a beginner. The stems usually have swollen joints, and therefore when the florists call the grass of a carnation "grass" they are morphologically right, although technically wrong. The leaves are always simple and opposite; we do not call to mind any variation from this rule. The typical number of parts in the flower is five, but in this feature variations occur: the stamens either agree in number with the petals or differ in a strictly arithmetical manner, but in the cultivated plants the number of stamens and pistils is a kind of lottery whatever the number *ought to be*. The silene is a catchfly because it is sticky; but why it should delude the poor flies to their ruin, and make (as it appears) no use of them when entrapped, is not yet clear to us. As a matter of practical importance it should be noted here that all the silenes are good plants for the table when rightly cooked. Of course when in flower they are useless, but when the young growth is advancing the tender tops make a good substitute for asparagus, and if blanched they are the more delicate and equally wholesome. The shoots should not be more than two inches long when taken for cooking. The best plant for the purpose is the bladder catchfly (*Silene inflata*). Probably the tender tops of any catchfly might be used in salads.

TULIP. Cotgrave derives the name from *tulipan*, the Dalmatian cap, which it resembles, and Skinner, following in a parallel line, derives it from *turban*, the Turkish cap. N.O., *Liliaceæ*, or Lilies. LINNÆAN: 6, *Hexandria;* 1, *Monogynia*.—The lilies constitute a large and diverse family, comprising such extreme forms as the dog's-tooth violet at one end of the scale and the aspidistra at the other, while between these occur the true lilies and the fritillarias, the phormium, asparagus, agapanthus, tritoma, and yucca. The leaves are always simple and entire, mostly narrow and channelled; the flowers normally consist of six divisions, which are sometimes united in a tube, and the stamens are six or three in number. The fruit is a three-celled capsule opening in three valves, and the seeds are usually membranous or with a crustaceous covering. The lily family range pretty freely over the world; in temperate zones they are herbs often with bulbous roots; in the tropics they attain to gigantic proportions and assume the character of trees. The tulip belongs to the same division of the order as the lily and the crown imperial, and in common with them is of perennial duration, renewing itself at the root annually.

SAXIFRAGE.—See note in synopsis, First Series, p. x.

SNOWDROP. The name is explained in the text. N.O., *Amaryllidaceæ*, the Amaryllis family. LINNÆAN: 6, *Hexandria;* 1, *Monogynia.* — A casual inspection of the flower by one unskilled in botany will result in a conviction of an alliance of the snowdrop with the lilies, but the snowdrop is simply not a lily but an amaryllid. Between the two families the differences are not many, but there are differences, and one of the principal is the inferior position of the ovary. This is a large order, comprising the snowflake, snowdrop, vallotta, pancratium, narcissus, the agave, and the "giant lily" of Australia, doryanthes. They are widely distributed and are plentiful in the southern hemisphere. A large proportion of them possess acrid juices, one of the number, the beautiful *Hæmanthus toxicaria*, being employed by the Hottentots to poison their arrows. An important amaryllid is the American agave, often, but mistakenly, called "aloe." From this noble thick-leaved plant a valuable fibre is obtained, and from the juice of its leaves the Mexicans prepare the celebrated drink called "pulque." The snowdrop was valued in ancient times for medical purposes, as also for a distillation of its juices employed as a cosmetic. But it is no longer used for such purposes, and lives unmolested, establishing its rights by its beauty alone.

TANSY. The name is explained in the text. N.O., *Asteraceæ*, the Starworts or Composites. LINNÆAN: 19, *Syngenesia;* 2, *Superflua.* —The place of the tansy in the enormous order of composites is with the artemisia, or wormwood, which it resembles in leafage and in aromatic properties. In this section the florets of the disc are always hermaphrodite, those of the ray pistillate. The leaves of the tansy contain a volatile oil, a fat, a resin, and a peculiar acid called tanacetic acid. The costmary, or *Pyrethrum tanacetum*, has similar properties, and formerly was held in high repute as an anti-spasmodic. The fragrant tarragon, so much prized by the eclectic salad-maker, is a member of the wormwood genus, as its name, *Artemisia dracunculus*, indicates. Another near relative is the southernwood (*Artemisia abrotanum*), a plant once much prized for promoting perspiration in catarrhal fevers, but now best known as a fragrant (and sometimes flagrant) enricher of a rustic nosegay. The common wormwood (*Artemisia vulgaris*), formerly in high renown for medicinal purposes, has of late been re-introduced to the catalogue of useful curative plants, being used as a remedy for epilepsy.

VALERIAN is a name of uncertain origin, said to be derived from that of a physician named Valerius, who first used it in medicine. N.O., *Valerianaceæ.* LINNÆAN: 3, *Triandria;* 1, *Monogynia?*—The Greek valerian or spikenard of Pliny is still occasionally used in

medicine, but is not of high repute. Bentley and Redwood recognise in this way the common valerian (*V. officinalis*), which is described as exciting the cerebro-spinal system, and to be denominated nervine and anti-spasmodic. There can be no doubt the root of the plant is capable of causing intoxication, and is, in effect, a peculiar narcotic. Our handsome garden plant *Centranthus ruber* is usually the very first plant of a showy nature that is seen in a new chalk-pit. When it has made a beginning by hanging its red beard on the weather-worn surfaces, other plants attach themselves, and thus in time a chalk-pit becomes a glorious flower garden.

MALLOW is from *malacho*, in reference to the emollient or softening properties of the plant. N.O., *Malvaceæ*. LINNÆAN: 16, *Monadelphia*; 8, *Polyandria*.—The mallows are a great and grand family, comprising the mallows of the field, the hollyhocks of the garden, the abutilons of the greenhouse, the hibiscus of the stove, and the cotton plant of the world. These plants have a strong family likeness: the calyx and corolla are usually in five divisions, the stamens indefinite and united in the form of a tube which sheathes the style, the pistil prominent above all, the fruit a many-celled circular capsule containing the seeds. All the mallows are innocuous; most of them are highly charged with mucilage, and not a few are useful as food or as supplying fibres of various qualities.

SYRINGA, or **PHILADELPHUS.** The first name is from *Syrinx*, the name of a nymph who was changed into a reed. The second name was applied by the Greeks to a tree that is now unknown. N.O., *Philadelphacæ*, or Mock Oranges. LINNÆAN: 10, *Decandria*; 2, *Digynia*. —The philadelphus is allied to the saxifrages and the roses much more closely than to the lilacs, as explained in the text. Hydrangea, Deutzia, and Philadelphus are genera that combine certain common characters, but the last named has sweet-scented flowers, which are unknown in the other two. They appear to be limited to the northern hemisphere and to prefer the temperate climes, but they do not range far northward, although in the English garden they are all hardy, or nearly so. The most fragrant of the genus under consideration is the mock orange (*Philadelphus coronarius*), a good thing enough in a mixed shrubbery, but a second-rate subject considered as a flowering tree. The finest species for a good position in the garden is *Philadelphus Gordoniana*, originally found by the celebrated Douglas on the banks of the Columbia river, and through him introduced to cultivation by the Horticultural Society.

MEZEREON is an Arabic name, and signifies "the destroyer of life," from its caustic properties. Of the generic name Daphne it cannot be needful here to speak. N.O., *Thymelaceæ*, or Daphnads.

LINNÆAN: 8, *Octandria;* 1, *Monogynia.*—It is necessary to speak a word of caution here. The *Thymelaceæ,* it will be observed, are Daphnads and not Labiates. Our sweet old friend the thyme, or thymus, is not in the story at all; that fragrant herb is a labiate, as are very many of our most valued aromatic pot-herbs. The Daphnes are spurge laurels, and poisonous, although in many cases useful for their active properties. In this group of plants we find the beautiful pimelea, the curious banksia, the lovely daphne, and the thymelæa. The mezereon is not without renown as an operative agent, for in Siberia the dandies (and the ladies too, perhaps) rub their cheeks with its berries to produce by irritation a red colour, the hue of the rose or the poppy being preferred. The lace-bark tree (*Lagetta lintearia*) belongs to this family, and the eagle-wood (*Aquilaria ovata*) is another important member, furnishing one of the lign-aloes.

DOUBLE PRIMROSE is of scientific interest as illustrating the physiological changes that accompany the doubling process. The double varieties demand more care than the single, and are more difficult to multiply, as they produce no seed, or so little and in such an uncertain manner that we cannot reasonably expect to secure it except by systematic attention and aided by experience in the matter. The leading characters of the primulas have been briefly set forth in previous volumes.

HELIANTHEMUM, from *helios,* the sun, and *anthemon,* a flower. N.O., *Cistaceæ,* or Rock-roses. LINNÆAN: 13, *Polyandria;* 1, *Monogynia.*—A family of herbs and shrubs, often with gummy branches and a resinous juice. The flowers are hermaphrodite, fugaceous, three or five divided, the fruit a globular capsule. The chief home of the cistus family is the southern shore of the Mediterranean and the warmer parts of Europe; there are few in America or Asia. The gum cistus (*Cistus ladanifera*) is a well-known garden shrub; this and other species supply the resinous substance known in commerce as labdanum, an inflammable substance used in the manufacture of torches, also as a cosmetic, and occasionally as a stimulant in cases of catarrh and dysentery.

ANEMONE, from *anemos,* the wind, in allusion to the breezy spots the more hardy species love. N.O., *Ranunculaceæ,* or Crowfoots. LINNÆAN: 13, *Polyandria;* 6, *Polygynia.*—The crowfoot or buttercup order is arranged in five groups or tribes, comprising severally—(1) the clematis and its near kindred, such as the atragene, &c.; (2) the anemone, adonis, thalictrum, &c.; (3) the ranunculus and ficaria; (4) the hellebore, caltha, trollius, aconite, delphinium, &c.; (5) the actæa and podophyllum. The plants of this order are scattered all over the world, most plentifully in temperate and arctic climes, most rarely in the tropics, except in high altitudes where a temperate climate pre-

vails. Comparatively few of them are serviceable to man otherwise than by their beauty. The buttercups are never willingly eaten by cattle, but when made into hay are innocuous and possibly serviceable. A curious exception to the dislike of cattle to plants of the buttercup order is afforded by the water crowfoot (*Ranunculus aquatilis*), which in many parts of the country is drawn from the streams where it grows plentifully as fodder for cows that eat it greedily. All true *Ranunculaceæ* have a watery juice, divided leaves, and the flowers are divided in threes and sixes; the petals distinct, inserted under the ovary. The anemones have a coloured calyx, and often the seed-vessels have a long bearded style.

CYCLAMEN, from *kyclicos*, circular, referring to the bulb-like root. N.O., *Primulaceæ*. LINNÆAN: 5, *Pentandria;* 1, *Monogynia.*—The plant appears to the casual eye to be far separated from the primulus, its round fleshy root or corm being a quite distinguishing feature. But it agrees in all essential particulars, and is placed in the second group comprising the primulas, androsaces, soldanellas, lysimachias, and dodecatheons.

PELARGONIUM, from *pelargos*, a stork, in reference to the shape of the seed-pod, which resembles a stork's bill. N.O., *Geraniaceæ*. LINNÆAN: 16, *Monadelphia;* 4, *Heptandria.*—This interesting order consists of soft-stemmed shrubs and herbs which may be grouped in two great divisions. In one division we have the true geraniums, which are distinguished by the regularity of the corolla, as may be seen in such beautiful British plants as *Geranium pratense* and *G. sanguineum*. In the other we have the true pelargoniums, which have an irregular corolla as seen in the familiar scarlet, ivy-leaved, and other species grown in gardens, of which for present purposes *Pelargonium lateripes* is a suitable example. The geraniums are mostly hardy and the pelargoniums are mostly tender; the first belong more especially to the northern hemisphere, the second to the southern. There is one hardy pelargonium known to a few cultivators, the curious and unattractive *P. endlicherianum*, the flowers of which appear to have only two petals.

PYRETHRUM, from *purinos*, fiery, sparkling. N.O., *Asteraceæ*, or Composites. LINNÆAN: 19, *Syngenesia;* 2, *Superflua.*—This "fiery" genus comprises for the most part plants with white flowers, but our *P. roseum*, one of the finest of all known hardy flowers, brings the best of fire into the garden to warm the greensward in the often chilly month of May. This plant is the source of the celebrated insecticide known as Persian powder. It is a near relation of the chrysanthemum and aster, and might properly be called the starwort of the spring.

ORNITHOGALUM, from *ornis*, a bird, and *gala*, milk. N.O., *Liliaceæ*, or Lilyworts. LINNÆAN: 6, *Hexandria;* 1, *Monogynia.*—The

star of Bethlehem belongs to the hyacinth group of liliaceous plants, having for associates the muscari, eucomis, allium, and the very lovely chionodoxa. The hyacinth and the scilla are, however, the two most important members of this section.

IXIA, from *ixia,* bird-lime, the plant having a clammy juice. N.O., *Iridaceæ.* LINNÆAN: 3, *Triandria;* 1, *Monogynia.*—All the irids are herbs with tuberous or fibrous roots, alternate leaves, which are often sheathing at the base. The flowers are regular or irregular, three or six divided, the fruit a three-celled capsule. The members of the order are widely scattered, flourishing splendidly in the southern hemisphere, more particularly the Cape of Good Hope. Ixia, sparaxis, tritonia, and Watsonia are relations, and require nearly the same management, being fairly hardy near London, but braving all seasons in the Channel Islands, more particularly in Guernsey.

CYPRIPEDIUM, from *Kypris,* Venus, and *podion,* a slipper. N.O., *Orchidaceæ,* or Orchids. LINNÆAN: 20, *Gynandria;* 1, *Monandria.* —The immense family of orchids has a few common and very striking characteristics which in structural detail undergo endless modifications, so that we are continually called on to account for appearances that when understood prove to be but variations of the strongly declared primary structure. The plants are herbs or shrubs, the latter usually having a climbing habit. The leaves are always simple and arise directly from the stem, or from swollen stems called pseudobulbs. The flowers are irregular and consist of a series of five threes, making fifteen parts in all, whereof frequently some are suppressed and others enormously developed. The special structure of the cypripedium is explained in the text.

ERYTHRONIUM, from *erythros,* red, in allusion to the colour of the flowers and leaves of the species first discovered. N.O., *Liliaceæ.* LINNÆAN: 6, *Hexandria;* 1, *Monogynia.*

DOUBLE BUTTERCUP illustrates the vagaries of the *Ranunculaceæ,* and suggests that certain of them have long been under the influence of man, who may be said in the present day to care but little about them. The study of the structure of a buttercup flower, whether single or double, but single more especially, is a proper first step to the acquisition of the structure of flowers in general. This is pointed out in the synopsis to the First Series, where the characters of the order are given.

GRAPE HYACINTH differs from common hyacinth in trivial features only. The name *muscari* is derived from *moschos,* musk, in allusion to the odour the flowers emit. The term "grape" is appropriate to the appearance of the flowers, for they might often be mistaken for berries, owing to the exceeding shallowness of the

lobes of the perianth. The essential characters are the same as in other liliaceous plants, for which see the synopsis to the First Series.

CAMPION may be called the camp flower, and such in truth it is. Search the shelving sides of any ancient earthwork, or the banks thrown up by the hedger and ditcher, and you will find campions of one kind or another. Even the common chickweed, which thrives nowhere so well as on the banks that enclose cultivated fields, may be called a campion, and is of the same family as the rest, the *Caryophyllaceæ*, in which we find the pinks and carnations, the spergulas, gypsophilas, and cerastiums. The characters of the order have been given; it remains here only to say that in double flowers the true characters are only in part represented.

SNOWY CROWFOOT is a ranunculus all over, and agrees, without any exception, with the essential features of the *Ranunculaceæ*, which have been made note of in a former synopsis.

SIEBOLD'S PRIMROSE differs from the typical primrose in some important particulars, and comes nearest to *Primula cortusoides*. The characters of the primulaceous order have been explained at length.

ALPINE WALLFLOWER illustrates in a very pleasing manner the characteristics of the cruciferous or brassicaceous family of plants, the main features of which are described in the synopsis to the First Series.

NARCISSUS, from the youth whose hapless fate is sung by Ovid, but more remotely perhaps from some property of the plant, as it is peculiarly obnoxious to cattle. N.O., *Amaryllidaceæ*. LINNÆAN: 6, *Hexandria;* 1, *Monogynia*.

DODECATHEON, an ancient name of a plant, the application of which in this case is by no means obvious. N.O., *Primulaceæ*. LINNÆAN: 5, *Pentandria;* 1, *Monogynia*.

ERICA, from *erico*, to break, the wood being peculiarly brittle. N.O., *Ericaceæ*.—The heatherworts are a distinct group of plants having a few striking characters, though varying so much that it would be an advantage were they more definitely separated according to their several minor affinities. The major affinities comprise leaves entire and without stipules, flowers usually regular but sometimes irregular, calyx with four or five divisions, corolla with four or five lobes, stamens eight or ten. The principal groups are severally represented by the arbutus, andromeda, erica, rhododendron, and ledum. Many of the members of the order produce berries that are eaten by birds, and a few of them supply tannin and aromatic essences, but generally speaking they do not rank high in respect of utility.

BEGONIA.—See synopsis, Second Series, page xi.

TROLLIUS, from *trol*, the German for round, in allusion to the globular flowers. N.O., *Ranunculaceæ*, or Crowfoots. LINNÆAN: 13, *Polyandria;* 6, *Polygynia.*—The globe flowers are closely allied to the hellebores; they are all hardy, yellow-flowered, and partial to loamy moist soils.

BERBERIS, or **BARBERRY,** has its name from the Arabic *berberys*, which probably means a gooseberry. The English name is from the French. N.O., *Berberidaceæ.* LINNÆAN: 6, *Hexandria;* 1, *Monogynia.*—The plants of this order are herbs or shrubs, with alternate, simple or divided leaves, flowers yellow or white, regular, and usually with sensitive stamens that spring to the centre and discharge their pollen on the stigma when the filaments are touched at the base with a pin. The berberries and their relatives are widely distributed, generally in the temperate regions; they are partial to cool moist climates, and are mountainous plants in regions where the plains and valleys are too warm for them.

HEPATICA. The name refers to the lobed leaves, which may be likened to the liver in outline. N.O., *Ranunculaceæ.* LINNÆAN: 13, *Polyandria;* 6, *Polygynia.*—The hepaticas are closely related to the anemones, and conform to the conditions that suit those plants.

GENISTA, from the Celtic *gen*, a small bush, or from the Latin *genu*, in allusion to the pliability of the branches. N.O., *Fabaceæ*, Leguminous or Papilionaceous plants. LINNÆAN: 16, *Monadelphia;* 6, *Decandria.*—This grand order of plants, useful, poisonous, beautiful, various, occasionally wonderful, will always reward the student for a careful study of details, because of their constancy to the typical idea, and their curious variations in expressing it. They generally have compound, but some have simple, leaves. They have irregular hermaphrodite flowers, which are sometimes apparently so regular that it is impossible for the young student to quickly apprehend their morphological relationships. The corolla is likened to a butterfly in the term papilionaceous; usually it consists of five petals, one of which being larger than the rest, and in a dominating position, is called the standard, two others on either side are called the wings, and two below, which are united, are called the keel. The reduction of these to equality, as in the mimosa, is a puzzling character. The fruit is always a pod, but it may be a pea or a bean or a drupe, in which case the differences are of some account.

CLARKIA, named after Captain Clarke, the traveller. N.O., *Onagraceæ.* LINNÆAN: 2, *Diandria;* 1, *Monogynia.*—The Clarkias are related to the epilobiums and evening primroses. They are annual plants, with linear or lanceolate leaves, and solitary or racemose flowers which are variously four divided. The capsule is linear, many seeded; seeds neither plumose nor winged.

CALCEOLARIA.

FAMILIAR
GARDEN FLOWERS.

THE CALCEOLARIA.

Calceolaria hybrida.

EXHIBITIONS have so greatly influenced floricultural tastes that we may be forgiven if for a moment we permit this flower to stir old memories. In the course of the fifty or sixty years that it has been in cultivation it has passed through all the phases incident to a proper florists' flower, and happily it remains for such as can enjoy it, though it has fallen from its high estate. This may, to the reader who is uninitiated in the floral mysteries, appear to be a dreadful fate for such a beautiful thing. But indeed it is not. When the flower was rising into fame the florists gave names to their choice varieties, and these were propagated by divisions and cuttings, to maintain them in the full integrity of their floral characters. But the fashion for named

herbaceous calceolarias has passed away, and therefore they are no longer named, and no longer grown from cuttings, and there is no care whatever taken to keep any plant beyond the season of its flowering. When groups of well-grown calceolarias are now staged at exhibitions, the spectators are delighted with their variety and richness of colouring, their massive heads of bloom, and the fresh and abundant healthy green foliage. If the plants are lovely to look at, they are surely none the less acceptable because they are grown from seeds as annuals or biennials.

Some special care is requisite in growing these splendid calceolarias in a creditable manner. The easiest, and, generally speaking, the best method, is to raise them from seed, which should be sown in July, in pans containing a mixture of equal parts of sifted loam, leaf-mould, peat, and sharp sand. The soil should be moderately moist, and the seed should be thinly scattered, and covered with the merest dusting of fine peat. A cold frame is the proper place for the seed-pans until the plants appear. Until they appear, shade the pans by laying sheets of paper over them, or by laying a mat over the light that covers the frame. The young plants must have light and air and regular supplies of moisture, but no excess of any of these aids to growth, for strong sun, strong wind, and a wet soil are equally inimical to their welfare. As they grow, prick them into other pans to give them more room. Nurse them in the pans until large enough to be put into small pots singly, using the same soil as before. You will thus have secured a nice stock of sturdy plants during the best growing weather of the first season.

To raise them from cuttings, we must wait until young shoots arise from the roots of plants that have flowered.

These must be removed with care, and potted singly, in small pots filled with the same mixture that is prescribed for sowing the seeds in. Shut them up in a frame, and keep close and shaded. Dew them on the tops by drawing the hand over a wet brush twice a day, but keep them almost dry at the root. If you have a hotbed in operation, or any other source of bottom heat, you may accelerate the rooting process; but beyond all doubt the best plants are obtained without resort to any such aid. If they are made unduly moist they will rot, and there will be an end of them. But with careful management they will soon make roots, and from that time should have more light and air to keep them healthy and *short*. Plants that "run up," and thereby become "long-legged," never flower as they should, and in some cases will not flower at all. The preventives of "lanky" growth are light and air.

We are now nearing the winter, and we have a stock of young plants in smallish pots, and it matters little as to their future management whether they were grown from seeds or cuttings. They must be shifted into pots five inches in diameter, and the compost should be of the same description as before, or a little more substantial—say two parts loam, one part leaf, one part sand, and no peat at all. They must not be potted very firm—a moderate pressure will suffice; or perhaps, when nicely filled in, one good tap on the potting-bench will settle the soil sufficiently.

The place for them during the winter is on a shelf in an airy greenhouse, near the glass, but not so near as to suffer during a sharp frost. If put on a stage far from the glass they will be "drawn," or, in other words, will become long-legged and weak; but if near the glass, and far away from the hot-water pipes, they will be short and

leafy and strong. But though as far from the pipes or flues as possible, they require a temperature during winter never below 40°, and therefore what is called a warm greenhouse is the best place for them.

In the early days of March shift them into 8-inch or 10-inch pots, according to the size of the plants. The soil for this shift must be somewhat rich—say three parts turfy loam, one part rotten hotbed manure, one part leaf-mould, and one part sharp sand. Be careful not to pot too firm. As soon as the plants begin to grow freely, increase the supply of water, and be careful to let them have as much light and air as possible, taking care, however, to guard them from any serious check. They may be flowered in these pots, but it will be good practice, as soon as the pots are fairly full of roots, to shift a few of the finest plants into 12-inch pots; and when these are full of roots, manure-water should be given, instead of pure rain-water, to promote a fine head of bloom.

ARUM LILY.

THE ARUM LILY.

Richardia Æthiopica.

THIS plant is usually labelled *Calla Æthiopica*, and there is no impropriety in classing it as a *calla;* on the contrary, it is well to embrace any and every opportunity of protesting against the vicious use of commemorative names that is now becoming common with botanists who are too idle to diagnose, while overbusy in "dedications." But no matter: "a rose by any other name will smell as sweet," and the arum lily is a glorious plant that should be grown wherever suitable accommodation can be provided for it. Being an arum, it is not a lily; but there is no lily, however beautiful, that can be said to surpass it in elegance of form or in the purity of its ivory-white chalice, folded in curves that seem to mock the genius of the greatest of artists.

There is not in the world a more accommodating plant than this, provided solely that it be protected from frost in

winter. A hardy plant it is not, and many a one has lived through two or three mild winters on the margin of a pond or stream, only to perish and leave no trace of its existence when a sharp winter has come and put it to the proof of extreme endurance. The arum lily is a greenhouse plant, half-aquatic in habit, yet bearing to be dried up in summer, as though water were the last of its necessities. But the drying-up is not good practice, for it results in the production of small flowers; whereas, if the plant be kept moist all the summer through, it will in spring produce large flowers, and a greater number of them than is possible in the case of plants that are forgotten, as many are from the moment they have ceased to be attractive.

Being a most accommodating plant, it may be grown in a variety of ways. As a pot-plant for the greenhouse, it may be easily managed to make its best display at Easter, when for decorative purposes its lovely spathes or flowers are invaluable. Any kind of greenhouse that is light, and safe against frost, will serve for wintering the stock; and the time of flowering will be very much in the determination of the cultivator, for by raising the temperature as the days lengthen the plant will respond, and produce its flowers before the usual time. It may happen that when forced a few aphides will appear on the plants. In this case nothing more is needed than simply to brush them off and kill them, for the plant bears handling, and fumigating is quite unnecessary, unless it happens that other plants in the house are in a similar plight, for we cannot remove the insects from all kinds of plants so easily as from the arums.

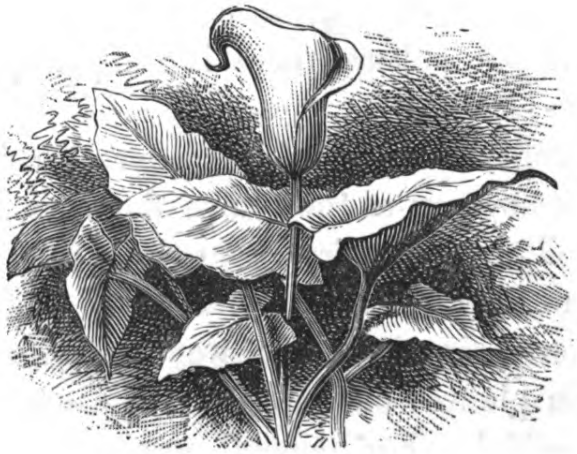
The routine culture insures to the cultivator a rapid

and very considerable increase of stock. It is in its way a profitable business, and demands the fewest and simplest materials. The soil in any case must be rich and strong —say two parts good loam and one part rotten hotbed manure; and there is no need for sand, except when very small offsets are potted. While in free growth the plants should have plenty of water. Every year, after flowering, they should be put out of doors, and kept moderately watered until the leaves die down; then shake them out and re-pot, using only one hollow oyster-shell for drainage, and dividing the plants as may seem best to increase the stock. The more you divide the smaller your plants will be. If, therefore, you want large specimens, you must pot a few without dividing them, and so proceed until they become too large to be manageable, the size in any and every case being determinable by the cultivator, if he will but wait for the plants to fill the pots of the maximum size allowable. It is good practice, as soon as the pot-plants are growing freely, to stand them in pans of water; but one inch or even half an inch depth of water is sufficient. On the subject of pot culture there is really very little more to be said.

A more profitable mode of procedure consists in planting them out as soon as they have flowered, in a piece of rich moist soil, to make free growth during the summer. In the autumn they are lifted, and potted for the winter, and are flowered in the usual way under glass. They are then again planted out, and at the same time divided as may be needful. For general purposes a combination of the two systems may be recommended, as the plants that are grown wholly in pots flower earlier than those that are planted out.

There is a spotted-leaved variety of this arum. It is catalogued as *Richardia albo-maculata*, and is admirably figured in "Illustration Horticole," 1860, p. 35. But no art of man can convey a just idea of the beauty of this variety; a mass of it planted out in a bed constitutes one of the freshest and most impressive of surprises; it is a proper item in "sensational" gardening.

Many who vainly lament the inability of the arum lily to endure a severe winter in the open garden are unaware of the generosity of nature in providing a hardy substitute. We have in our water garden fine clumps of a North American aquatic, *Calla palustris*, differing much from *C. Æthiopica*, but bearing a family likeness, and really very beautiful in its way. This plant is perfectly hardy, and increases fast and flowers freely in a bed beside some still water, where it needs to be protected against encroaching weeds.



PRIMULA OR CHINA PRIMROSE.

PRIMULA, OR CHINA PRIMROSE.

Primula prænitens.

FAMILIARITY does not always breed contempt, and the exceptions to the rule may supply a problem for the philosophers. Perhaps familiarity never breeds contempt, for what we attribute to "familiarity" may be really attributable to the nearer knowledge of men and things that familiarity favours. We set up idols and worship them. When we discover that they are made of wood, we dethrone them. We admire a thing because it is new, and discard it when we learn that it is worthless; but a really good thing retains our respect when the novelty has passed away, and thus it is that we never feel contempt for such familiar, cheap, and simple things as bread and butter, scarlet runners, and Chinese primroses.

This plant came to our hands in the year 1820, and

for some time thereafter was but poorly grown, and had no such beauty as it has now. Our figure represents it as it usually appeared in the early days of its advance in the way of improvement. Within the past ten years the progress of improvement has been really wonderful, for we have great variety of leafage, the leaves being in many cases elegantly lobed, and constituting a race called "fern-leaved primulas;" while the flowers are single and double, smooth and fringed, and of all colours, from pure white to fiery red, approaching pure scarlet.

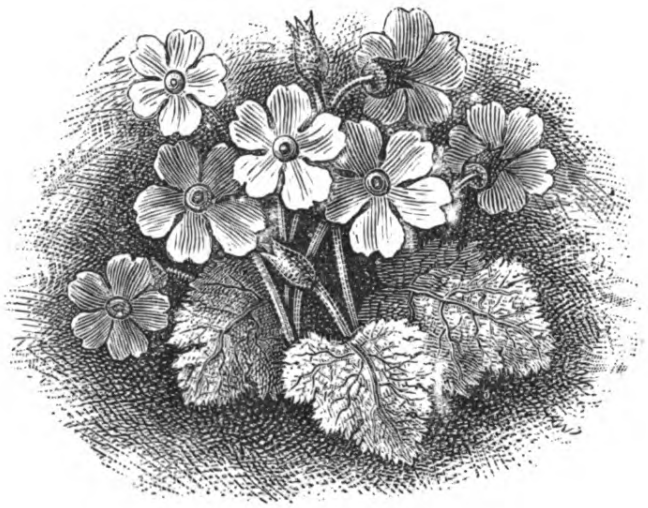
To grow these plants from seeds requires only moderate care, and one of the important points is to have really good seed to begin with. To be sparing of the cost of seed is to be committed to a sort of "wild goose chase;" and as the finest seed in the world is cheap enough for the poorest cultivator, there can be no excuse for the waste of labour upon a poor strain of plants. It may almost be said that the seed may be sown at any time, but the best time is from March to May; a sowing may be made, however, as late as July for a late bloom. To speak generally of the Chinese primula, it may be said that the same treatment as advised for the cineraria or the herbaceous calceolaria would suit it fairly well. But such an "offhand" direction is scarcely proper in the present case. Having begun with good seed therefore, the next thing is to sow it, and this is really a delicate operation. The seed-pans must be perfectly drained, or the business will fail at the first chapter. Stagnant moisture and sour soil are deadly at any time to this primula, but especially so in its earlier stages. Therefore we begin with shallow seed-pans, in which are packed some scientific potsherds. Then we fill up with first about a handful of flaky manure from an

old hotbed or heap, chippy and dry. The remainder must be three parts sifted red or yellow loam (London mud not allowable), one part perfectly pure leaf-mould in a powdery state, and one part of the sharpest sand procurable. So far for chapter the second. The pans being filled to the rim, and moderately pressed down, the seed is to be thinly scattered and very lightly covered. If you cover it deeply, you may at the same time say "farewell" to it, for you will know no more about it, although it will not "fare well" in any sense of the term, but will simply perish.

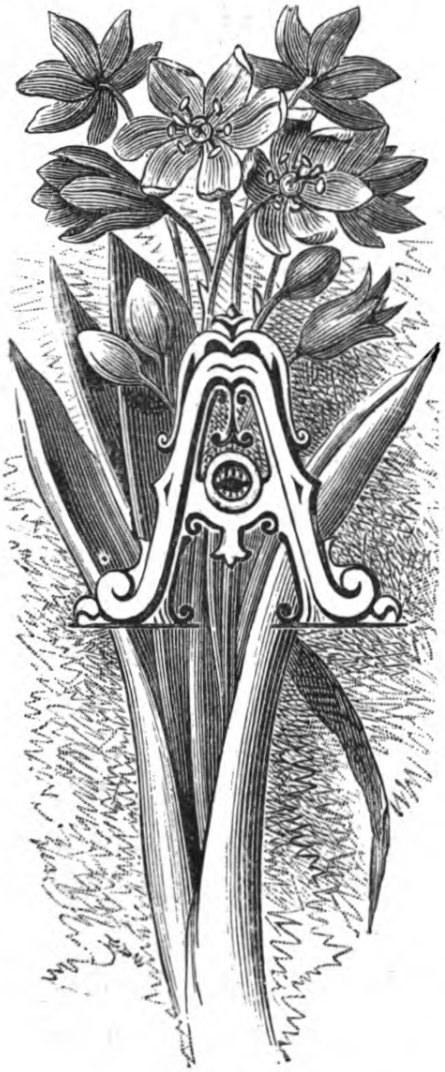
The seed-pans should be covered with a layer of sphagnum, to keep the seed moist, without necessitating a fresh supply of water. But sheets of paper answer fairly well, and if the soil in the pans gets a little dry, carefully dip them, but do not let a drop of water flow over the surface. It may be well here to remark for the advantage of the reader, that any and every primula seed will perish if, after being sown, it is allowed to be dry for any length of time. But with a little care the seedling plants will soon appear, and frame culture is all they require until winter is at hand. Pot them off separately in small pots as soon as they are large enough to handle, and keep them somewhat cool and shady and moist, but with no stagnant water or sour soil about them, and ordinary frame protection will suffice until frost may be apprehended. Then house them in the same way as advised for the herbaceous calceolarias, the winter minimum to be 40°, the early flowers to be pinched out as soon as they appear, and the plants not allowed to flower until they have made leaf-growth enough to give promise of a fine display. Pots of seven to eight inches in diameter are large enough for fine specimens.

The double varieties, and any single varieties possess-

ing peculiar characters—such as variegated foliage, for example—are grown from cuttings or divisions. The way to take the cuttings is to divide the crown, reserving to each cutting a portion of the central stem. It is almost impossible to root these without the aid of a gentle bottom-heat, and quite impossible to root them if they are kept cold and wet, for, to tell the truth, they are delicate and troublesome, although the expert in propagating makes quite light of the task of getting up a stock of a few hundreds or thousands, as may be required. They need a somewhat dry atmosphere, to prevent damping off; and they require a certain amount of moisture, to prevent flagging. When rooted put them into small pots, and plant them deep in the pots, using the compost recommended for seedling plants. From this point the routine prescribed above will be sufficient. Both single and double kinds should be renewed annually, for only the most expert growers can keep old plants, and they often find the keeping more plague than profit.



SIBERIAN SQUILL.



SIBERIAN SQUILL.

Scilla sibirica.

TINT of blue in field or garden exercises a mysterious influence. In the later days of spring, when along the margins of woods and coppices our woodland squill, *Scilla nutans*, also known as *Hyacinthus non scriptus*, makes a fringe of heavenly blue, we experience a strange thrill of emotion, either because the colour has some spiritual import that the soul understands, or because the assurance it gives of the constancy of the seasons re-establishes the confidence that late frosts and east winds had well-nigh shattered. And yet the influence, whatever its ultimate cause, can scarcely be the result of any special awakening peculiar to the season of the nodding squill, because it comes upon us again as the summer opens and the blue speedwell appears on the banks; and again, later on, when the harebells appear; and perhaps it is not altogether wanting when the blue of the wolf's-bane is seen upon the gravelly slopes, and the delphiniums and aconites appear in the gardens.

The Siberian squill is one of the hardiest of our choicest kinds of spring-flowering bulbs. It has but to be planted in a well-drained sandy soil in the autumn, and in the early spring it will show its lovely blue flowers in profusion, a delight and surprise to all beholders. As a pot-plant it is invaluable, and it requires as such only the same treatment as crocuses, hyacinths, and tulips, all of which demand a somewhat rich and very sandy soil. When planted in rings or clumps, squills may be left untouched for three years, and then it will be as well to lift, divide, and replant.

To make a lengthy essay on the out-door cultivation of the Siberian squill would be to waste an opportunity. In the few words already before the reader the subject is practically disposed of. But now we may turn to a proposal of the plant itself, for we seem to hear it say, "Why not associate me with the other choice spring flowers that are grown under glass?" Ah! why not? Well, to dispose of that matter, the Siberian squill and the two-leaved squill (*Scilla bifolia*) are two of the sweetest spring flowers known.

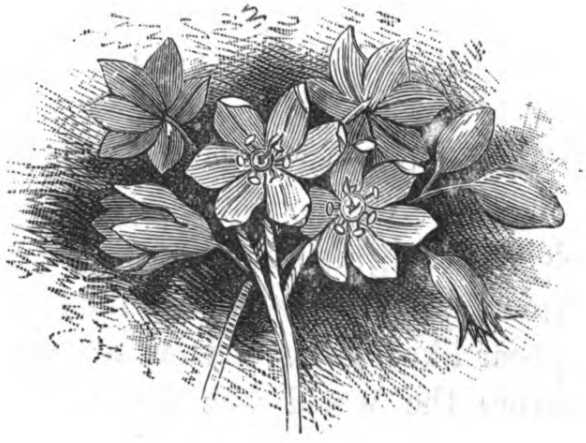
One of the cheapest and least troublesome of delights for a lover of hardy plants is a proper "alpine house," in which a number of early flowering bulbous and fibrous-rooted plants, having all the proper alpine character, can be flowered in early spring. Such a structure should have a low span roof resting on brick walls, with side lights opening as ventilators. A central walk through is a primary necessity, and on each side of this should be a solid bed of earth, supported by the outer walls and the walls on each side of the central path. The whole thing may be on a small scale, but sufficient headroom and width of path should be provided, and the height of the side beds above the walk should be such that the plants can be seen and

handled conveniently. As a rule, all stages and platforms are too high; and this may well be thought of in the first instance, for it is better to look down on flowers and see their faces, than look up to them and see less of their faces than of their stems. All the plants in such a house should be grown in pots, and when their flowering is over they should be put outside on a bed of coal-ashes with a north aspect, and they should have careful attention. It is not necessary to supply such houses with any kind of artificial heat.

In the alpine house, with earth platforms and ample ventilation, we can have a display every spring of the most exquisitely beautiful flowers the earth produces. We can have drabas more lovely than cushions of gold; reticulated irises that make figured velvet look ridiculous; saxifrages that steal snow from the mountains and make poetry of it that warms one at the very time, perhaps, when the snow that has not been stolen chills one to the core; primulas all dusted with the efflorescence of the granite they delight in; and epimediums that mock all art in the colouring of their simple but delicious leafage. But these, you will say, are things we know so little of that your words fall upon our ears like water on a duck's back. Very well, you know of the hardy alpine cyclamens, the dog's-tooth violets, the grape hyacinths, the hoop petticoat narciss, the American cowslips, and a thousand more such things that appear like spring butterflies that have turned out of bed before the world was warm enough, and are more charming in their half undress than ever they can be in their finished leafage, when the eye is diverted from them by the multitude of out-door flowers. All these can be well grown and perfectly enjoyed in an alpine house, the

cost of which should be but trifling, and the joy thereof beyond all price. The spring flowers will banish our cares, and we shall in beholding them feel freshened, and in happy sympathy with the spirit in which Clare wrote his tender sonnet on the opening spring.

"Spring comes anew, and brings each little pledge
That still, as wont, my childish heart deceives;
I stoop again for violets in the hedge,
Among the ivy and old withered leaves;
And often mark, amid the clumps of sedge,
The pooty shells I gathered when a boy:
But cares have claimed me many an evil day,
And chilled the relish which I had for joy.
Yet when crab-blossoms blush among the may,
As erst in years gone by, I scramble now
Up 'mid the bramble for my old esteems,
Filling my hands with many a blooming bough;
Till the heart-stirring past as present seems,
Save the bright sunshine of those fairy dreams."



PASSION FLOWER.

THE PASSION-FLOWER.

Passiflora cærulea.

PASSION-FLOWERS abound on the great Western Continent and the isles thereof. Though not unknown as wildings in the far East, their proper home is South America, and their head-quarters are in the plant-producing valleys of Brazil. To the generous land which has so greatly enriched our gardens with orchids, palms, begonias, and amaryllids, we are indebted for the finest species of passifloras, which, with other glorious twining plants, riot in the humid woods and festoon the lower acclivities of the mountains. From Brazil we derive the plant before us, and its near kindred—the white, the actinia-like, the hand-shaped, the racemed, and the flesh-coloured passion-flowers; while other regions of the great continent have given us the scarlet, crimson, yellow, purple, and lime-tree-leaved

species. The most noted of all, the square-stalked *Passiflora quadrangularis*, which is often grown for its edible fruit, is a native of the productive island of Jamaica.

The first passion-flower introduced to this country was *P. incarnata*, a native of Virginia, figured by John Parkinson in his immortal work, the "Paradisus Terrestris," wherein he describes it as "the Virginian climer," or "Jesuites Maracoc." Parkinson's figure is a fanciful travesty of the fact, and comes near to the mystical figure in Hone's "Every-Day Book."

The blue passion-flower, the subject of the present figure, was introduced about the middle of the seventeenth century, but the first distinct record we have of it represents it as cultivated by the Duchess of Beaufort in 1699. It is the most useful species known, for the sufficient reason that, while it is extremely beautiful, it is quite hardy in this country, and ripens its fruit in abundance in the suburbs of London. The fruit is as ornamental as the flower, being of the colour and size and nearly the form of an apricot; so that, when in autumn it appears in plenty, the beautiful green herbage of the plant seems studded with ripe oranges or eggs of a brilliant apricot colour. The fruit is edible, but is not often eaten, as the addition of wine and sugar is needed to render it agreeable to the palate; and then the question of its wholesomeness remains to be decided.

The first passion-flower came to Linnæus as the "Flos Passionis," the flower of the passion, and this name he cleverly latinised into Passiflora as the name of the genus. But why is this the flower of the passion?—The conquerors of South America were cruel and rapacious, but they were, according to the notions of their time, profoundly pious in

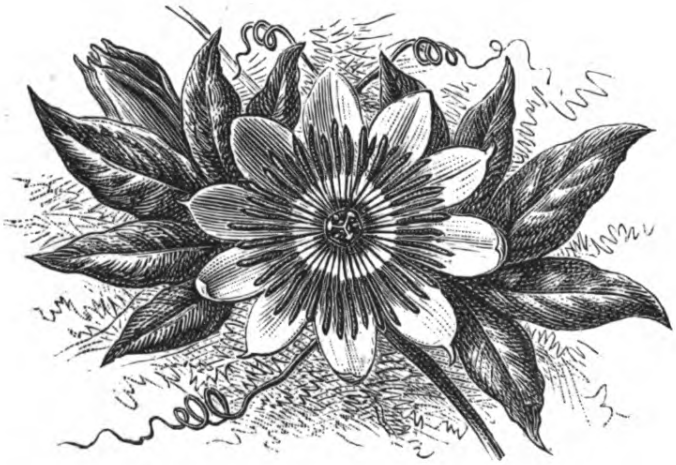
thought and deed. They readily saw in this flower the emblems of the story of the Redemption. The leaf of the plant represents the spear with which the Saviour was pierced; the threads that form the corona represent the scourge; the five stamens represent the crown of thorns; the column is the staff to which the scourge was attached; the three clavate stigmas that rise above the flower are the nails that were used in the crucifixion; the outer rays of the flower—sepals five, petals five—ten in number, represent the apostles—and ten will suffice, since nature affords no more, and the two that may be counted as missing are Peter who denied and Judas who betrayed the Master. By another rendering of the mystic symbol, the corona becomes the cloud of witnesses; the circles become rays of glory; the five stamens are the five sacraments of the Romish Church or the five points of Protestant doctrine; while the three stigmas that surmount and crown the flower are the three Persons of the Adorable Godhead.

To cultivate this fine plant is a very simple business, provided we can begin with a rich, mellow, well-drained soil and a warm wall of sufficient breadth for its full development. The rest is easy, for it consists merely in regularly training in the growth by means of nails and shreds, or by tying to a trellis, and occasionally pruning away any shoots that appear out of place, or that tend to crowd one another. The less pruning the better, generally speaking; therefore the cultivator need not often think of this matter. But in the event of any accident that disfigures a fine plant, it is good practice to cut the whole of it down to the ground line, and wait for a new growth to clothe the wall, for this will come quickly, whereas it may require years to fill up a gap caused by severe frost or mechanical injury.

It is a matter of some interest to students of plants to know that this blue passion-flower was selected by William Curtis for one of his earliest subjects in the *Botanical Magazine,* the figure being No. 28 in that vast series, numbering now some seven thousand figures. And Curtis's portrait of the plant, published in 1788, is as good as any extant; and to this day the colouring is as true and fresh as if it had been finished but yesterday.

The bards have taken but little notice of this interesting and, as one might suppose, attractive subject. But Bernard Barton, in his "Invitation to Flowers," was not unmindful of its claim to honours in verse, and thus he brings it before us:—

"Vain were the hope to rival bards, whose lyres,
On such a theme, have left me nought to sing;
And one more plant my humbler Muse inspires,
Round which my parting thoughts would fondly cling;
Which, consecrate to Salem's peaceful King,
Though fair as any gracing Beauty's bower,
Is link'd to Sorrow like a holy thing,
And takes its name from Suff'ring's fiercest hour—
Be this thy noblest fame, imperial Passion-flower!"



CATCHFLY.

THE CATCH-FLY.

Silene pendula.

SILENES are not dedicated to Silenus, as the name might suggest, although a cynical dedication might be secured in that direction. The generic name refers to their stickiness, for they do not entrap flies in the way of the drosera and dionœa, but by the more vulgar way of daubing themselves with invisible treacle. We have a lot of them in the British flora, and one of the number, the white campion (*Silene inflata*), may be seen in stony counties grown as a hay crop, a purpose also served by its near relative the ragged robin or cuckoo flower (*S. flos-cuculi*), which may not infrequently be seen filling enclosed fields with its lovely flowers, and constituting the sole herbage for a crop of hay. The common red catch-fly (*S. armeria*), the moss campion (*S. acaulis*), the German catch-fly (*S. viscaria*), and the white catch-fly (*S. vespertina*), are the best of the

Britishers for the decoration of the garden proper; but for the wild garden and the rough, damp parts of the shrubbery, the red campion (*Lychnis diurna*) and the ragged robin (*S. flos-cuculi*) are pre-eminently valuable.

But to furnish the rockery effectually, we must have certain of the species from the south of Europe, and the plant before us comes in force to declare itself a hardy garden plant of the first quality, though set down in the books as a half-hardy plant of the second quality. It is one of the most popular of rockery and bedding plants, being equally useful to form a shining clump in front of green saxifrages and sheets of sun-roses, or to dress a bed with the best of millinery, that will be full of high colour in the merry months of May and June. We have many such, of which, as examples, may be named the Alpine catch-fly (*S. alpestris*), with glittering white flowers; Elizabeth's (*S. Elisabethæ*), with large rosy flowers; the marine (*S. maritima*), that shows a few white flowers all the summer long; the Pennsylvanian (*S. Pennsylvanica*), with purple flowers; and the autumnal flowering (*S. Schafta*), purplish-rose, a first-class rock plant, adapted also for grouping in the borders. For the insatiable collector there remain many more, such as the oriental (*S. orientalis*), with rosy flowers, and the cushion catch-fly (*S. pumilio*), of the most dwarfed growth of a true Alpine, the leafage forming a cushion, above which appear the large rosy flowers, in delightful freshness of form and colour.

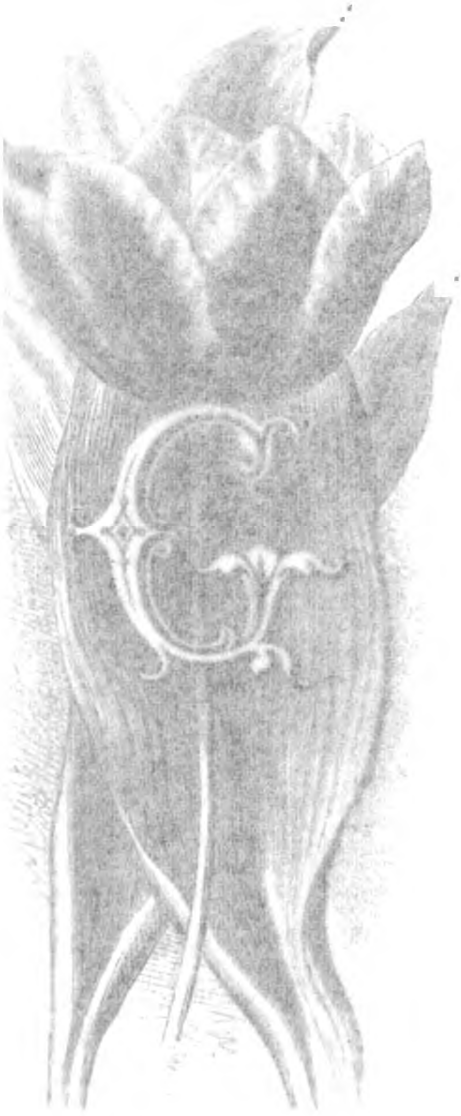
These several species vary slightly in relative hardiness, but they are all hardy enough for the experienced cultivator of Alpine plants, who has a golden rule to cheat the frost when the frost appears to have a silver rule to cheat him. They all agree in requiring full exposure to light

and air. Shelter they may have to advantage; but the shelter of a near ledge or shelf or cap of rock is far better for them than the shelter of near walls or trees, and a close, damp spot is one in which they will suffer from frost sooner than in any open place that is not literally ploughed by the east wind. But with all such plants losses will occur, and it is a part of the Alpine gardener's duty to provide accordingly, which brings us face to face with the golden rule.

A rockery may be furnished at but small cost, and may be kept furnished and for ever beautiful, and for ever changing in its beauty, with but little trouble, provided the selection of plants be made to suit a certain limited range of resources. We have advised our readers on this elementary, cheap, and pleasing system of rockery management. The iberis, saxifraga, sedum, campanula, thymus, potentilla, and innumerable other genera offer us plants that will grow almost anywhere, and that no winter will destroy. For the rockery that is to take care of itself there is no dearth of plants, and many of them are equal in beauty and human interest to any that the world carries on its flowery breast. But the enthusiast in plant-collecting does not content himself with these. He will go into regions where difficulties prevail, and take plants from the mountains that will, if they can, resent the removal to the garden, where there is no certainty of snow to protect them in winter, and no certainty of ever-trickling moisture amongst stony grit to keep them growing happily in summer. The collector meets the difficulty with a golden rule, which consists in having duplicate plants of all the kinds that might slip through his fingers, these duplicates being in pots protected by frames, constantly

under observation, and completely within control as regards their exposure to the weather, the water and light allowed to them, and the soil in which they are to pass their probation. It is a very simple matter, but it must be reduced to system, or there is absolutely nothing in it. But when reduced to system, there is joy in it. Many of the potted drabas, erodiums, silenes, meums, anemones, gentianas, primulas, and the like, will flower early in the frames, and be of the greatest value for adorning the greenhouse or the table; and when disaster happens to their brethren of the rockery, they will be ready to take their places, for they constitute the reserve forces that are to fill the gaps when the troops exposed to fire and frost are cut down.

EARLY TULIP.



THE EARLY TULIP.

Tulipa præcox.

GARDEN tulips have become so freely hybridised that it is no easy matter to determine to which particular species they severally belong. Practically it is of little consequence, and probably in the genus *Tulipa*, as at present defined, we have not more than half a dozen species, although in the books we may find a register of forty or fifty. For garden purposes we have a series of distinct types that may be recognised as specific. They are *T. præcox*, the head of the early tulips; *T. gesneriana*, the head of the late tulips; *T. suaveolens*, the head of the Van Thol tulips; and *T. turcica*, the parrot or ridiculous tulip, a delightful absurdity, rich in colour, as various as folly, and as ugly as any hater of florists' flowers can desire. Others that remain for the curious collector, such as *T. sylvestris*, the British woodland tulip, *T. clusiana*, a very

delicate tulip, and *T. celsiana*, that is like a large yellow crocus, will be found by the earnest man easily enough, for are they not in the trade catalogues, priced at so much per dozen, and needing only love and patience to grow them perfectly? The tulip figured is the famous Keizerskroon, a most fitting representative of the entire section of early tulips, whose collective name is Legion, and whose proper patrons are the souls comprised in the word everybody, and that are so free and easy in their habits of life that they can live and prosper anywhere. As a matter of fact, the early tulips are the cheapest, most showy, most accommodating, and (when skilfully handled) the most lasting of all the spring flowers; and thereby hangs a tale.

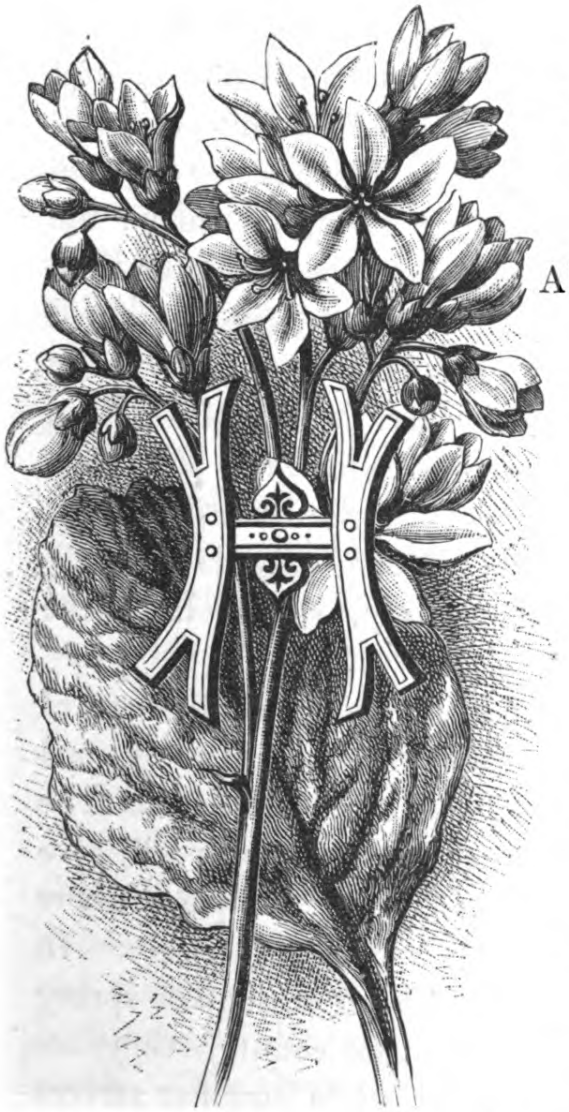
In all current histories of the tulip it is commonly assumed that the late tulips, descended from *T. gesneriana*, were the subjects of the extraordinary speculations of the seventeenth century, collectively known as the "tulip mania." But the late or "florists'" tulips have no such special distinction, for of the variety named *Lac van Rhyn*, a single bulb of which in the days of the mania was sold for 175 gulden, is still in existence, and is an early tulip, much prized as a bedder, and obtainable at a few shillings per dozen. So, again, the *White and Red Bordered*, known in Holland as *Wit en Rood borde*, each bulb of which was sold at 2,000 gulden, is still in cultivation as an early variety, and commands a very low price as a thing of little account. The true state of the case is set forth at length, on the basis of documentary evidence, in a lecture on the tulip by the present writer, the text of which will be found in the *Gardeners' Magazine* of March 26, 1881. It is therein conclusively established that the early florists favoured the early and the late varieties about equally; and Parkinson

and Hanbury concur in representing the early section as of the first importance, from the high standard of technical judging that prevailed in days when the tulip was in the height of its fame. The tulips to which the florists give attention now are late tulips exclusively; they can see no merit in the early ones, and from their point of view there can be no question as to the soundness of their choice. The early tulips give us none of the rare pencillings of flames and feathers; the pure white basis proper to a tulip of high breeding is unknown amongst them; and the short tazza form, smooth and evenly expanded, like Hebe's cup, they cannot show. Consequently, the early tulips have been thrown out of the select catalogue, and the lovers of gay flowers who care little for fanciful markings that are very costly, but care much for abundant colour at a low price, may be fully gratified, and after all may still congratulate themselves that the cheap early tulips were once upon a time valued above rubies, and that only wealthy persons could afford to use them for the adornment of their gardens. When the bulb season is in full tide at Haarlem, the tulips make a marvellous display of colour. In the later days of April the hyacinths are in perfection, and as they decline at the dawn of the merry month of May, the early tulips come forth in sheets of crimson, scarlet, purple, glittering silver, and refulgent gold. In the way of flowers, it is a question if any place in the whole world can match the display at Haarlem and Overween, where some 700 acres of land are occupied with bulbs, the great bulk of which bloom at one and the same time. To see the sight is, comparatively speaking, such an easy matter, that it may be recommended as a proper subject for an excursion, especially, too, as it is at the very time when the Netherlands are in every way

the most attractive, for as we travel through the country the new spring growth of the pastures and the myriad golden flowers that deck the water-courses constitute in themselves an entertainment of the most refreshing character, calculated, in behalf of any one whom a long winter has troubled, to restore the energies and drive dull care away.

The early tulips require a rich sandy soil, in which they should be planted in October or November. Soon after flowering the leaves die down, when the bulbs should be lifted and stored away. A collection of the varieties will be found full of interest and usefulness, as they make a delightful display when planted in clumps in the garden borders. For planting in masses, the best varieties are Couleur Cardinal, Couronne Pourpre, Duchesse de Parma, Keizerskroon, Pottebakker, Yellow Prince, and Thomas Moore. These are all single, and rich in positive colour. The best doubles for beds are Rex Rubrorum, Imperator Rubrorum, Tournesol, Gloria Solis, and Couronne des Roses.

LARGE LEAVED SAXIFRAGE.



LARGE-LEAVED SAXIFRAGE.

Saxifraga ligulata.

HARDY plants adapted for beds, borders, and rockeries may be roughly thrown into two classes: those that are capable of taking care of themselves, and those that require to be constantly taken care of. This large-leaved saxifrage belongs to the first class; it is one of the most thrifty and useful flowering plants in cultivation, and it is scarcely possible to have too much of it in any garden, for it will thrive where many good things would fade, and its pleasing flowers are produced in plenty in the spring season, when they are especially welcome.

We have a group of large-leaved saxifrages that are very closely related. They are sometimes classed as *Megaseas*, and it would be well were this generic distinction generally accepted, for they differ greatly from saxifrages

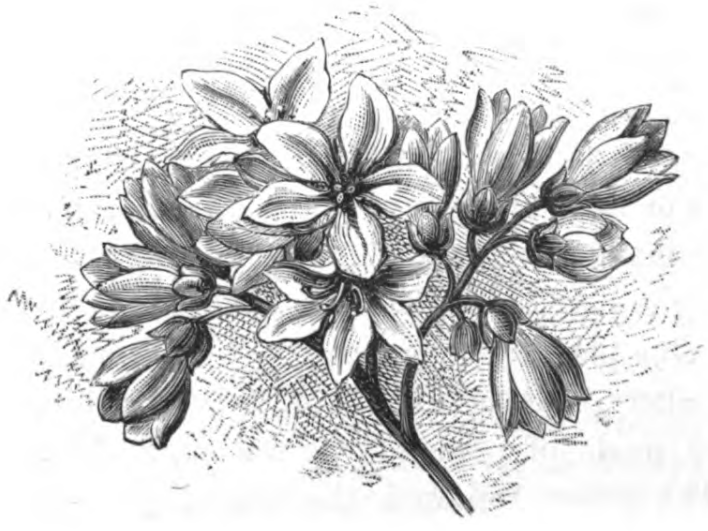
in general, both in leaf and flower and love of shade, the small-leaved saxifrages being for the most part lovers of sunshine. The noble *Saxifraga cordifolia*, *S. crassifolia*, and the plant before us, *S. ligulata*, constitute a group having large leaves rising from a stout root-stock, and bearing panicles of rosy flowers on stiff fleshy stems in the months of April and May. The first has flowers of a clear light rose colour, which appear somewhat early; the second has flowers of a rosy red, which appear later than those of the first kind; the third produces lighter-coloured flowers than the others, and flowers early. To these may be added a scarce hybrid, raised by Mr. Parker, of Tooting, called *S. atropurpurea*, the flowers of which are of a deep rich purplish-rose colour, and exquisitely beautiful. All are handsome and useful; but if one only is wanted, *S. crassifolia*, the thick-leaved variety, should have the preference.

These plants are hardy, and capable of taking care of themselves, but they do not prosper in any dry or exposed position. Damp, cold, and deep shade are alike hurtful to them; but a moist ledge or bank, where trees will give partial shade in the heat of summer, is just the place where they may be expected to grow freely and flower bravely. In Paris they are much employed for mixing with other spring flowering plants in beds; but in this country they are not often so used, perhaps because when summer arrives they are found occupying ground which can be more advantageously filled with plants that flower later and continuously. We have had many plantations of these saxifrages under various conditions, but one situation seemed especially favourable to the plants. This was a small sheltered fruit garden, consisting of rich, deep, and de-

cidedly moist, loamy soil. The saxifrages were planted on each side of the main walk, and were fully exposed to light and air (though sheltered from cold winds) during the winter and spring months; but as summer advanced they were in a considerable degree shaded by the leafage of plum and pear trees that spread overhead, and though not robbing them of light in any serious degree, did certainly screen them from the sunshine.

The amateur gardener may profitably bear in mind that success in gardening is like success in life, inasmuch as the secret of success depends in a great measure on attention to little things. We obtain our plants from all sorts of places—from rocky heights, from humid valleys, from snowy plains, and from warm water-courses—and yet we expect them all to thrive under nearly the same conditions within the boundaries of one garden. And the wonder is that many of them do thrive under conditions that appear so very different to those they were adapted for by nature. But their adaptiveness is a limited quantity, and it is an important part of the business of the cultivator to discover the limits, so that he may not kill his pets by subjecting them to conditions at variance with their requirements. Two amateurs of hardy ferns agreed to make an attempt to grow the true maidenhair fern in a London garden, and they both bought plants of the same tradesman for the experiment. One planted his delicate pet in a nice snug corner of the rockery, and having followed the teaching of a book as to the mode of planting, he waited, and hoped for the best. The other followed the teaching of the book as regards the suitable soil, and so forth, but having reflected on the frail constitution of the plant, he proceeded to evolve out of his consciousness conditions of which the other

had not thought. He made a miniature cave with slabs of stone on edge, thus enclosing the delicate fern in a kind of open stone box. As winter approached he laid another slab over the box, thus making a close cave of it, the plant still obtaining sufficient light and air through the rough apertures where the fittings were imperfect. The plant so easily disposed of by number one disappeared during the first winter, and was seen no more. The plant of number two lived and grew, and became a grand specimen, and was displayed to visitors, living all alone, like a jolly hermit, in its substantial cave, through the large chinks of which it laughed at the frost and defied the winds; and when it spoke—as of course it often did—the subject of its discourse was the importance to the gardener of things that thoughtless people call "trifles."



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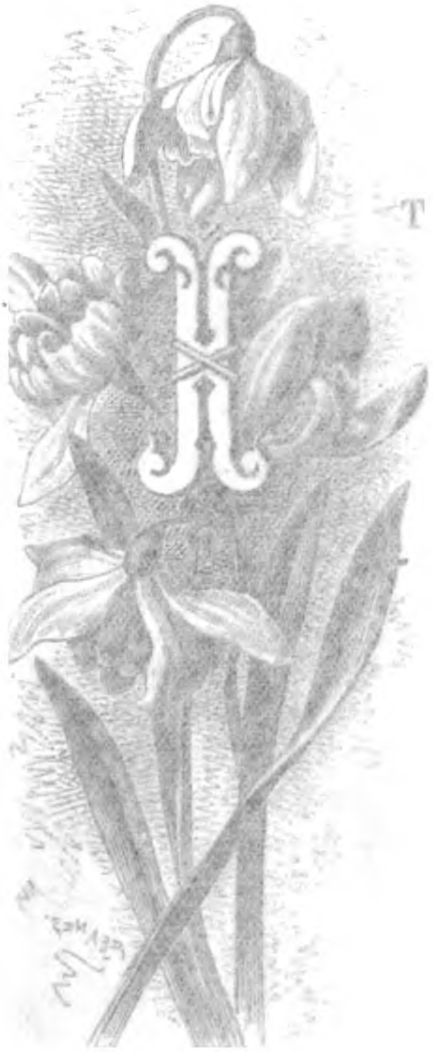


THE SNOWDROP.

Galanthus nivalis.

IT will appear to the casual reader that the snowdrop is regarded, in the light of its name, as "a drop of snow." The philologists often remind us that "obvious" derivations are always wrong. We may doubt if the sweeping declaration is a good one; but the present case justifies it so far, because the snowdrop is not a drop of snow. The reader may have seen in the jewellers' shops and in the ears of some fair lady imitations of fuchsia flowers in precious stones, and called "fuchsia-drops." The word before us is an exact parallel thereto. These flowers are likened to eardrops, and they are called "white flower-drops," and that is the proper interpretation of snowdrops. The name is from the German *schneetropfen;* it implies that the flower affords a type of a class of personal adornments, and to copy it in jewellery would be in perfect taste, other matters having concurrent consideration. The Germans

have *schneeblume*, white winter flower, and *schneeflocke*, snowflake. To liken a flower to a drop of snow is not reasonable, because there is no such thing as a drop of snow, and there never will be. The decorative notion of the name has not escaped the poets, as, for example—

> 'While still the cold north-east ungenial lowers,
> And scarce the hazel in the leafless copse,
> Or sallows show their downy pendent flowers,
> The grass is sprinkled with its silver drops."

The snowdrop was known to the old or British botanists as a bulbous violet, and also as the Fair Maid of February, and by them it was properly recognised as an introduction from the Continent. Gerarde speaks of it as growing wild in Italy, and as having been thence introduced to "our London gardens." It is a native of Switzerland, Austria, and of Southern Europe generally. When met with as a British wilding it appears to be as happy as its near relation, the daffodil, for it spreads into considerable masses, and though a local flower, is plentiful enough in the places where it occurs. There are many stations in Worcestershire, Herefordshire, and Gloucestershire where wild snowdrops may be found; and the county of Sussex can boast of a few, as it can of daffodils also. When met with in places of its own choosing, it is usually in some degree shaded, as though full exposure to the glare of the sun and the fury of the wind were not to its liking. As regards soil, however, it is not at all particular; but we may say that in cultivation a deep sandy loam is best for it, as it is for about nine-tenths of all the border and rockery flowers that are most valued in gardens. Snowdrops increase quickly, and flower freely if allowed fair play; but unfair play obliterates the plant, for it resents insult by terminating an

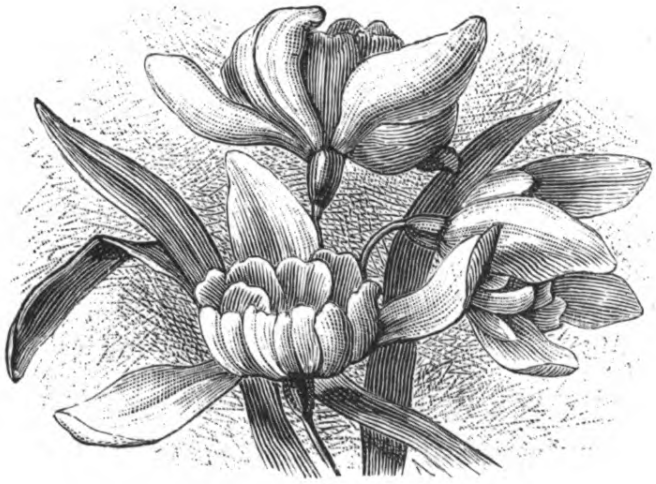
objectionable existence. To do justice to it, the planting of the bulbs should take place early in the autumn, for they require time to prepare themselves for their early flowering. And the next thing is to *leave them alone,* for annual disturbance is fatal to their prosperity.

A very serious mistake is made in many gardens in the tying of the leaves of snowdrops and crocuses, to make them look "tidy." What an absurd proceeding! Tidy, indeed! The leaves fall over in the most graceful lines when left alone, and may supply an artist with a subject worthy of loving attention; but when tied they are hideously ugly and altogether ridiculous.

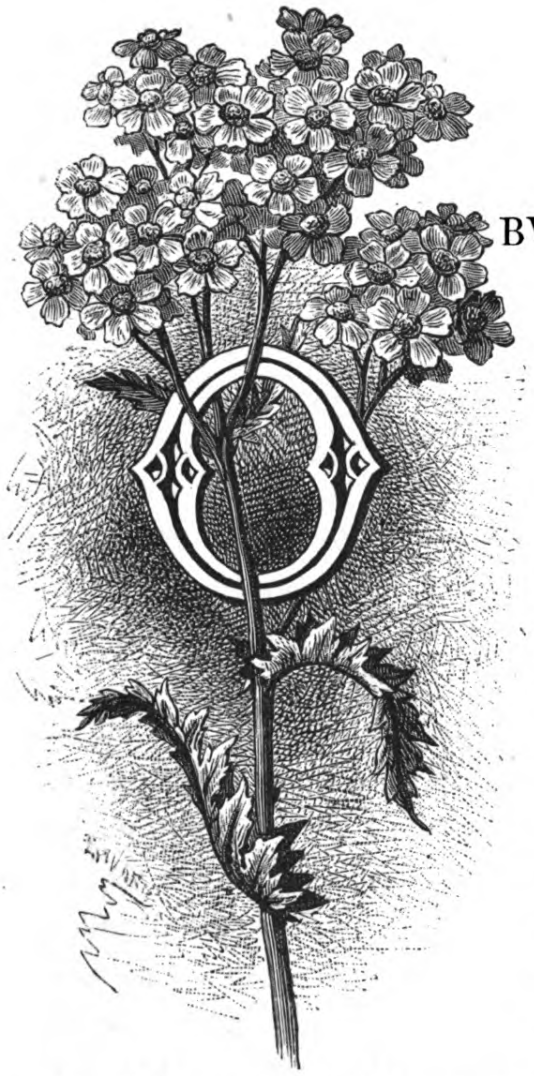
The varieties of snowdrops are about half a dozen in number. The first to flower is a dwarf sort, called *præcox.* In about seven days after this has flowered, the common *nivalis* shows its familiar flowers. These are succeeded by the princely *imperati,* which rises above all the rest, and produces larger flowers. *Plicatus* is the folded-leaved Crimean snowdrop, known by the folding of the edges of its leaves, which are larger than the leaves of the common variety. The flowers of this, however, are often smaller than those of the common snowdrop, and they are always somewhat greener. As regards colouring, green is often objectionable in a flower, but its combination with white in the subject before us is exquisitely beautiful. A variety with the divisions of the perianth bent back is called *reflexus.*

In parlour gardening, the snowdrop is occasionally grown in water-glasses, in association with crocuses, hyacinths, tulips, and polyanthus-daffodils. These bulbous-rooted flowers are all amenable to the water culture, and afford agreeable amusement to fireside gardeners. There are two points of importance in the management that it

may be well to mention. It is not well for the bulbs to touch the water; there should be a space of at least an inch between the water and the bulbs. The other point is that the first growth should be made in the dark, to promote the free action of the roots before the leaves appear. When the flower-stem and leaves push in advance of the roots, a poor bloom may be expected; but when the roots move first and spread freely, a good bloom may be expected, and there will be a saving of time in the end. It should be remembered further that full exposure to light is absolutely essential to the production of healthy leaves and flowers.



TANSY.



THE TANSY.

Tanacetum vulgare.

OBVIOUS etymologies, as we observed while discussing the origin of the name "snowdrop," are, indeed, sometimes right, but they are wrong often enough to prove the folly of any general declaration. How very Teutonic does the word "tansy" appear to the casual eye, and how very far from the tongue of the Teuton is its beginning in the verbal world! Although a bitter plant, it bears no relation by name to the process of tanning, but represents in reality the Athanasia of Olympus. Thus we must make a lofty flight to settle the etymology of this cottage garden herb, that to-day gives flavour (and a very unpleasant flavour) to a pudding, and to-morrow is employed to make a nauseous draught which ranks in fame with salts and senna as an agony incidental to the spring-time of our

mortal life, when bitters are bitter indeed. It is a fact, for which there is abundant book evidence, that tansy was sold as *athanasia*, and it acquired that name from the supposition that a plant was employed by the gods to render favoured mortals immortal, and fit society for the celestial highnesses by whom human destinies were governed. King Jupiter said to Mercury, "Take away this Ganymede; give him a draught of athanasia to render him immortal, and bring him back to serve here as cup-bearer." You will find the story in Lucian. It is only necessary to knock out the first letter, and the name is seen to be fully prepared for degradation; in fact, that small change starts it on the journey down the steep sides of Olympus into the smoky valleys where mortal men are to be found. The botanical name *Tanacetum* is quite modern, and gives one the idea of a great mass of tansy. Thus with the name of the plant we are quite out of the region of common sense.

For garden use, tansy ranks with golden rod and other such second-rate plants. Nevertheless a mass of tansy in flower is a fine sight in its way even in a garden; but when met with by the seaside, or in some half-wild waste where it has been long undisturbed, it may be described as noble, for the foliage is peculiarly rich, while the golden buttons glitter gloriously in the sunshine. As a garden plant, however, the tansy rises high above the commonplace, for it has enjoyed a degree of fame in connection with the so-called "leaf bedding" that has been in fashion of late years, since its delicious tone of green gives relief to the purple, bronze, and golden leafage of other and less hardy plants that are in request for planting in masses. The common tansy answers for this purpose fairly well; but a variety

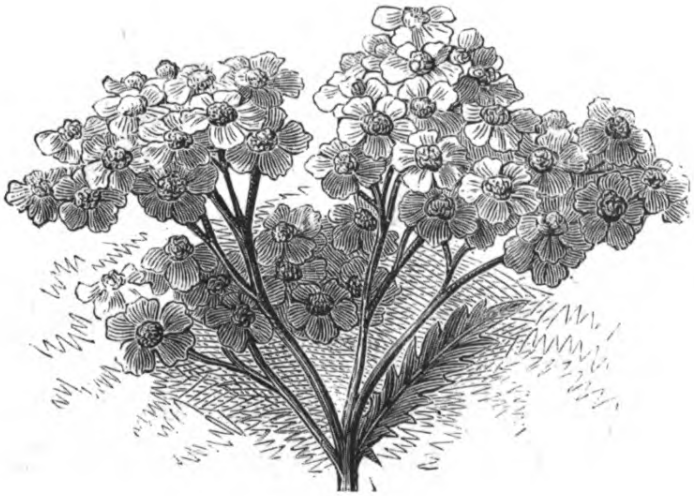
known as *crispum* is far better. This variety is of dwarf, compact growth, and the colour of the leaves is brilliant emerald green; they are most elegantly cut, and delicately crisped and frizzled. To insure full appreciation of the beauty of this variety we should have to represent it as rare and costly; in which case, were the declaration accepted as true, the plant would be regarded as wonderful and unique. But it is a hard task to work up a rapture about the qualities of anything that is "common," and so we shall close this paragraph by saying that the variety *crispum* should not be allowed to flower, and that each plant should be somewhat isolated, so as to display its beauties advantageously, for when overcrowded these do not properly appear.

Tansy puddings, tansy cakes, and tansy omelettes are, perhaps, out of fashion. But they were certainly relished in days gone by, for Gerarde speaks of them as "pleasant in taste," and he recommends tansy sweetmeats as "an especial thing against the gout, if every day for a certain space a reasonable quantitie thereof be eaten fasting."

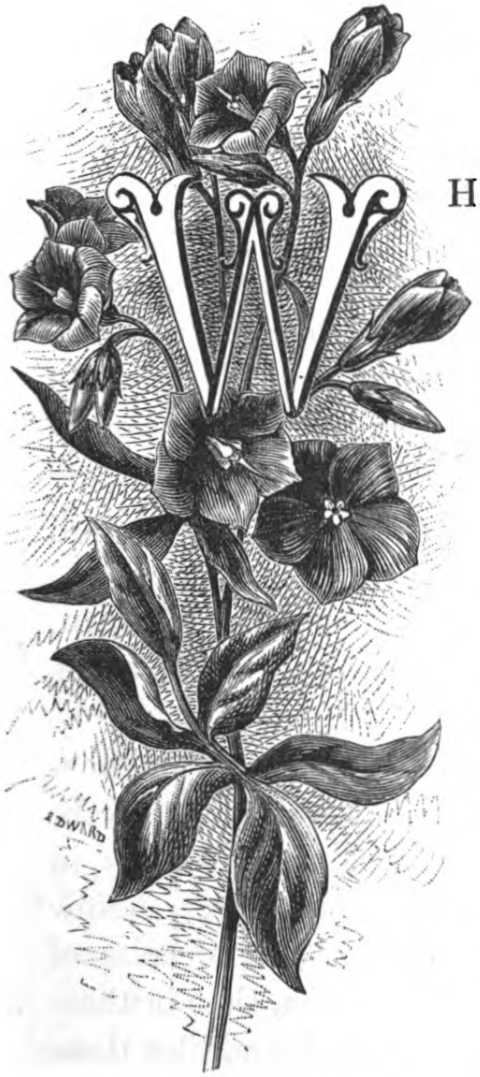
One of the most curious uses of the plant in olden times, perhaps, was that of rubbing it on joints of meat to prevent the attacks of flies; but how the flavour that was thereby imparted to the meat was got rid of we do not know. Perhaps, as the plant was commonly used in cookery, a tansy-flavoured joint of meat was always welcome, as in some parts of Europe it is customary to insert a clove of garlic in the top end of a leg of mutton, that in the process of cooking the entire joint may acquire the flavour of the vegetable that it is almost a sin to think of in polite society.

Here is a picture of an old-fashioned garden with the tansy in full glory in the midst thereof:—

"And where the marjoram once, and sage, and rue,
And balm, and mint, with curl'd-leaf parsley grew,
And double marigolds, and silver thyme,
And pumpkins 'neath the window climb;
And where I often, when a child, for hours
Tried through the pales to get the tempting flowers,
As lady's laces, everlasting peas,
True-love-lies-bleeding, with the hearts-at-ease,
And golden rods, and tansy running high,
That o'er the pale-tops smiled on passers-by."



GREEK VALERIAN



GREEK VALERIAN.

Polemonium reptans.

WHAT is the Greek valerian? It appears that nobody knows. The ancients who wrote about plants were not at all troubled with scientific notions. Poor things! they did "*allium* call their onions and their leeks," for *allium* was part of their vulgar tongue, or if it was not, it was vulgar enough for those old Romans who were not known as "ancients." The *phu* or valerian of the Greek writers was a plant of some sort, and *Polemonium cæruleum* and *Polemonium reptans* have equally been mistaken for it; but neither of these was the Simon pure.

As regards the plant before us, which may be called a chip from Jacob's ladder, inasmuch as it is the brother or sister plant to *Polemonium cæruleum*, the claims it has to be regarded as the Greek valerian disappear before the negative truth of its absolute uselessness. Greek botany

was not founded on Pentandria monogynia nor on Polemoniaceæ. Plants that were found useful in some way or other were cultivated and described, and plants that were not useful were entirely neglected. Even when superstition or poetical fancy ruled, the theory was the same, for a supposed use is equivalent to a real use, so long as the supposition holds good; and many of the plants that were of importance in ancient times owed their distinction to properties perceptible to the eyes of faith alone. Even then it was their usefulness that inspired and justified the study of them; for to this hour utility is as much a matter of faith as of proof, or there would be no fortunes made by the sale of many articles, some of which are truly invaluable, while others "perhaps" are absolutely worthless, or, worse than that, pernicious to health. Well, we can rest in the word faith, and throw utility overboard, and then where are we?

We are then in the presence of the true valerian, the history of which is not only important, but is in its way touching.

Our common valerian offers us in its roots a camphorated and bitter principle. The partiality of cats for the plant is well known; but to mankind the plant is in these parts no administrator of æsthetic pleasures. Now here is a strange truth illustrative of the tendencies of race, climate, and the resultant idiosyncracies, that in these Western parts of the world sweet mild odours, like those of mignonette, wallflower, wild thyme, and woodruff, are universally enjoyed, while cocoa-nut oil and the cheese-flavoured wormwood are universally disliked; but these last are the very odours that give delight in the East, where our fragrant favourites are the least valued.

The valerian of the ancients was the spikenard, *Nardostachys jatamansi*, a figure of which will be found in the *Gardeners' Magazine*, 1883, p. 33.

This is a member of the valerian family, and a plant of great modern as well as ancient repute, on account of its powerful perfume. Some part of its reputation is, indeed, far from agreeable to Western notions of propriety and good living. But it has higher associations, and such as are dear to thousands. And it comes about in this way. It was a Roman custom for a guest at an entertainment to make a contribution to the feast—it might be of a measure of wine, or a box made of some precious stone and filled with spikenard. Now it was just such a gift that offended Judas when Mary anointed Jesus' feet with ointment so precious that it might have been "sold for three hundred pence and given to the poor." The Greek valerian was doubtless the same as the spikenard of the East, but there was no other nearer home than Crete—the *Valeriana phu*, or garden valerian, described by Pliny. This has properties similar to the other, but is not so strong, and is perhaps of more direct importance in respect of its medical uses.

The plant before us is not in any way related to the Greek valerian. It is a member of the family of Phloxes, and may be roughly described as a creeping form of Jacob's ladder, running to six or more inches in length of stem, and producing blue or white flowers. It is a native of North America, perfectly hardy, and a proper plant for the open rockery. Any sandy soil will suffice for its wants, and it may be increased by division and seed with facility. The nearly allied species or varieties known as *P. pulcherrimum* and *P. humilis* are as good as the plant before us,

and may obtain attention as producing blue flowers. But they are not of great consequence, and the possessor of a small rockery may do very well without them. There are about a dozen species known, but *P. cæruleum* and *P. reptans* are sufficient for most gardens.

MINIATURE MALLOW.

MINIATURE MALLOW.

Malva Creeana.

GARDEN mallows afford us suggestion of the place that many mallow-worts occupy in the world of art. They are at once peculiar and beautiful, but they make no special appeal to us until we follow the good old plan of taking some knowledge to school with a view to add to its store, for such as go empty are but too likely to come empty away. We have but few garden mallows; and we may venture to add that the world has not very many. But a certain proportion of them are of great importance to the human race. The marsh-mallow (*Althæa officinalis*) is known to be emollient and demulcent, but it is not known as an article of food in this country, although in the East it is commonly eaten, and is much valued. The common hollyhock (*Althæa rosea*) is known for its beauty, but it is of importance as a plant yielding an abundance of fibre and a blue dye equal in

quality to the best indigo. The hibiscus is a mallow, and in India is grown for its fibre, which is called "Ambaree hemp." The edible hibiscus (*Hibiscus esculentus*) is cultivated as an article of food in many of the warmer regions of the earth, and the seeds have been used as a substitute for coffee. The celebrated "pepper-pot" of West Indian cookery owes its peculiar attraction to the seed-pods of this species, which are largely used in preparing it. The sida and the abutilon—genera that may be said to be scarcely distinguishable—are, like so many other mallow-worts, productive of fibre of great strength and the most silky texture. The amateur when enjoying his greenhouse may therefore look to his beautiful abutilons, with their fresh green leaves and bell-shaped flowers, and calculate their money value for the loom or the rope-yard. The consideration need not destroy the poetry, for that can be re-established by studying the relations of the flowers to the true and undoubted mallows. Finally, and omitting many other uses of the mallows, the cotton-plant (*Gossypium herbaceum*) is a mallow of great beauty, and possessed of a history that has yet to be written. Should the future historian of the plant take notice of these humble pages, he will find here a reminder that may be of some value. It is a fact of peculiar interest, and one that carries a cream of humour in the story that embodies it, that cotton has been grown for the manufacturer in this country, and the fibre proved to be of the highest quality. The wealthy and public-spirited Mr. Sam Mendel, formerly of Manley Hall, Manchester, carried out the experiment, and possesses in the concrete the results of the manufacturing process. The details will be found at length in the *Gardeners' Magazine* of December 16, 1882.

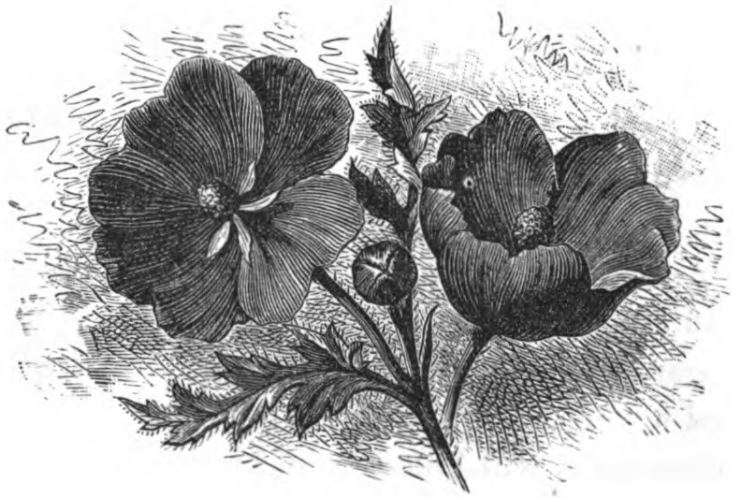
The grandest of the garden mallows are the well-known *Lavatera arborea* and *L. trimestris*. These are beautiful plants, the first-named being the bold tree-mallow which is so often seen near the sea-coast—a plant occasionally grown as fodder for cattle. There has been lately introduced to cultivation a fine variety with variegated leaves, which makes a stately figure in the flower-garden. Our pretty musk-mallow (*Malva moschata*) is perhaps the best of the native species, because of its neat habit; but the wild and daring woodland mallow (*M. sylvestris*) and the round-leaved sprawling mallow (*M. rotundifolia*) are, as wildings, glorious, and quite admissible to the sunny parts of a wild garden, to make bold blotches of colour amongst the rougher kinds of herbage. To recommend them for the flower garden proper would be as flagrant a violation of good taste as the introduction of a Bornean cannibal in his costume at an "at home" in a fashionable drawing-room.

Plants of smaller growth and with various pleasing features are to be found in this family. *Malva mauritanica*, *M. lateritia*, and *M. crispa* constitute a group of useful border and rockery plants. *M. divaricata*, *miniata*, and *Creeana* are beautiful examples of typical mallows, of smallish growth, producing beautiful flowers, but of doubtful hardiness. The bell-flowered mallow (*M. campanulata*) and Moren's mallow (*M. Morenii*) are much to be desired for the rock garden, being hardy, showy, and of free growth. They need a well-drained soil and a sunny situation, and having these aids, will take care of themselves.

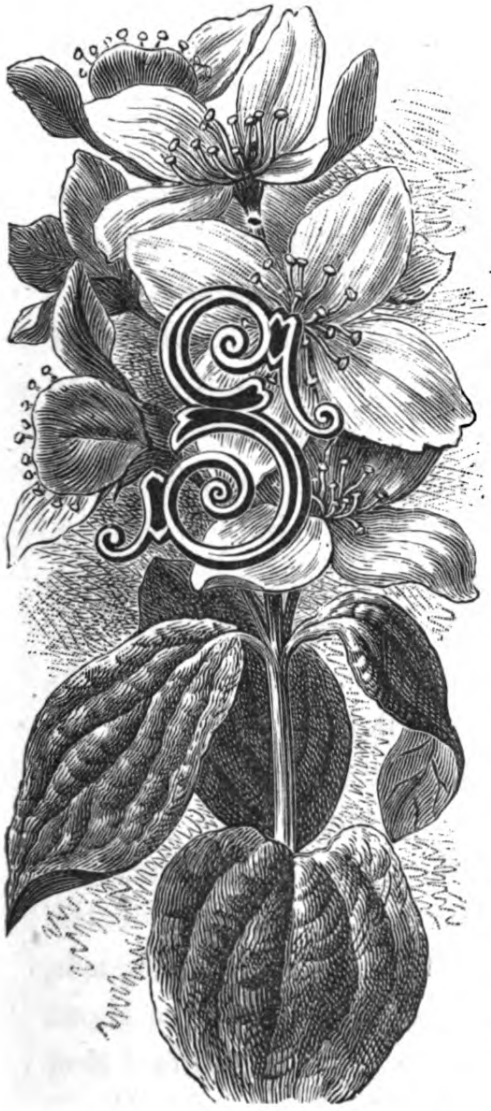
To raise plants of any of the foregoing, the simplest method is by means of seeds. These should be sown in pans or boxes in the spring, and have the shelter of a frame until the plants are somewhat advanced, after which

time the ordinary treatment of seedling herbaceous plants is all they require. But they may be raised with facility from cuttings, which should be made from the young shoots when these are nearly full grown. If planted firmly in sandy soil, and covered with a hand-light, the cuttings will soon make roots, and with a little care may be grown to a useful size for planting out.

The plant figured was raised by Mr. George Penny, of Milford, who named it in honour of his friend Mr. Cree, of the Addlestone Nursery. It is nearly related to *Malva miniata*, and equally so, perhaps, to *M. divaricata*. It is a suitable plant for a sunny part of a rockery, and to insure keeping it a few surplus plants should be raised annually and wintered in a frame for planting out. Its place in the *Botanical Magazine* is t. 3698.



SYRINGA



THE SYRINGA.

Syringa grandiflora.

SYRINGAS are suggestive of the highest glories of the spring. The "enamelled meads" and the flowery banks are more lovely in spring-time than Tom Tiddler's ground could ever have been, for his parterre was dotted with only gold and silver. Here on these green prairies and bosky banks we have rubies and amethysts and carbuncles and jacinths in endless variety, and in presence of them can afford to tell the truth that Tom Tiddler's ground is nowhere. But we speak of the higher glories of the spring, and those who look higher will see them arrayed on the leafy boughs of fruit trees, thorn trees, syringa trees, and trees of many shapes and names. The flowering trees are, beyond all doubt, the finest of all the furniture of the English garden in the best days of the flowery spring. This syringa, a familiar tree, cheapest of all in man's market

as in nature's market, is a delicious beauty when its white flowers are set out like huge pearls upon a groundwork of green leaves, while the birds sing from its sprays the happy song that has always for its burden—

"Spring is here, and Summer is coming."

The subject before us proposes a question in which gardeners are interested and amateurs often perplexed. What is the difference between a syringa and a philadelphus? In gardens and books they are strangely associated under the same generic distinctions, and when the large white flowers of a philadelphus or mock-orange are labelled syringa, the unscientific observer wants to know where and how it is related to the lilac, which is a syringa certainly. Now, between the two there is a great gulf fixed, and the only bridge across it consists of the running analogies that unite all plants. The fact is, a true philadelphus or mock-orange is a saxifrage; that is to say, it is a member of the order *Saxifrageæ*, in which occur the saxifrage proper, the francoa, hydrangea, deutzia, escallonia, ribes, and, to repeat it, the philadelphus. On the other hand, the lilac is an olive, or, to speak more correctly, a member of the order *Oleaceæ*, in which we find the phillyrea, privet, ash, forsythia, and the true syringa, or lilac. There are about thirty orders between those two groups of plants—a fact that justifies the remark above that a great gulf separates them.

The large-flowered mock-orange, *Philadelphus grandiflorus*, is known also as *P. speciosus* and *P. latifolius*. It is a deciduous shrub, rising to a height of six to twelve feet, with roundish leaves, and producing large white, sweet-scented flowers in the month of June. Although classed with spring-flowering shrubs, the time of its

flowering may be said to be at least almost summer. There is a nearly allied species, *S. inodorus*, which, as the name implies, produces scentless flowers. The Japan species, named *P. satsumi* or *P. sinensis*, is a real beauty, slender in growth, with narrow leaves and large white flowers. The latest flowering species is Gordon's philadelphus (*P. Gordonianus*), an American species, producing flowers of great size.

The common mock-orange of gardens is a respectable shrub of no particular value. It is the coronal or garland syringa (*Philadelphus coronarius*), a native of Europe, growing five to ten feet high, with smooth ovate leaves, and having an abundant bloom of creamy-white fragrant flowers which appear in the month of May. Thus the syringa, as commonly known, belongs to the spring rather than to the summer. Cultivation promotes variation, and in this case the usual results have followed, for there are some interesting varieties of the mock-orange to be found in gardens. The best of them for general purposes are the double-flowered and the variegated-leaved varieties.

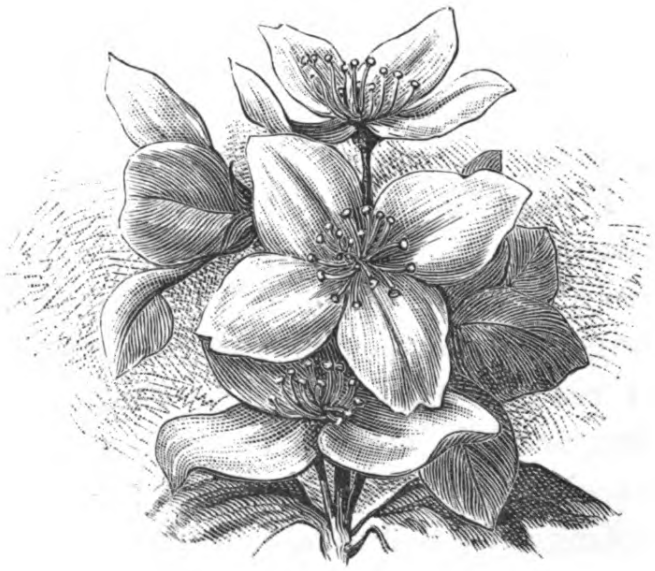
Having spoken of second-class shrubs, we feel bound first to beg their pardon for apparent but unintended depreciation. It is in the nature of our connoisseurs as well as of appraisers to compare values, and we are not disposed to rave about the mock-orange any more than about the real orange, but acknowledge at once that both are useful. Let the philadelphus, if it be the least aggrieved, do as some human philadelphists do: let it take consolation from the respectability of its family connections. In the order of saxifrages we find some first-class garden shrubs, which we will now name for the advantage of readers who do not happen to possess them.

Deutzia crenata (syn. *D. scabra*) is a handsome, hardy shrub, rising to eight or ten feet, the habit neat and almost elegant, the flowers produced abundantly in the height of summer.

Hydrangea hortensis, japonica, and *paniculata* constitute a grand group of plants for the open garden. As they are well known, it would be waste of words to describe them; but it is not generally known that they are perfectly hardy in the climate of London.

Ribes sanguineum is a lovely garden shrub, not well adapted for town gardens. Its brilliant flowers are so acceptable in spring, that wherever it will grow it should be freely planted.

Escallonia macrantha is a glorious evergreen flowering shrub, a little tender in the climate of London, but as "hard as nails" anywhere on the western and southern coasts.



MESEREON

THE MEZEREON.

Daphne mezereum.

MEZEREON is a dwarf olive, but as the plant is not an olive, nor indeed half so useful, it is proper to add that the name is of Arabic derivation, and the Arabs named plants by their visual analogies, and not by analogies of structure. It is the *maçzeroun* of the Arabian physicians, and a destroyer of life, which the olive is not.

There is no flowering shrub in our gardens that gives us higher pleasure than the mezereon. We have indeed finer subjects (according to our notions), but when this shrub flowers, these finer things are as good as dead, because there is not a flower upon them, or even the sign of a coming leaf. To speak of the mezereon as a spring flower is a mistake. The hedgerows are bare, and the birds for the most part are silent, or dismally twittering, when the lovely mezereon is in its full glory, and most

delightful it is to see its branches studded with brilliant pink or purplish flowers—

> "Ere a leaf is on the bush
> In the time before the thrush."

Nor does the performance end with this fairy tale, for the transformation scene follows, and then the leafy rods are dotted with ruddy berries, and if you come late upon the scene you are sure of something for your money. There are white flowering varieties, and we have heard of, but not seen, a double-flowering variety, the flowers of which are reported to be of the richest fiery carmine colour, and to last twice as long as the single flowers. Long duration is a proper quality of double flowers, and so on that part of the story we raise no question. It will be safe to advise the reader to acquire the double-flowering mezereon, for it must be a fine thing if it really exists. The autumn flowering variety we have long possessed, as also Fortune's (*D. Fortunei*), which has lilac flowers, which, with us, appear about Christmas.

Hardy daphnes are not numerous, and the best of them are less hardy than they should be for universal usefulness. The commonest is the green-flowered *D. laureola*, a true native, flowering in February, and a really interesting, though not showy plant. The amateur who is an amateur indeed should make a point of having a few plants of this species always in the garden, in case he should be at any time afflicted with a passion for daphnes in general. It is the species employed for grafting the finer sorts upon, and therefore, when the fit comes, one form of medicine will be ready. Having indulged at some length in such pastime, we can say that to make the

stocks and put on the grafts is easy work, and the great point is to have nice quarters ready to promote the junction and the growing. The Pontic Daphne (*D. Pontica*) is but a form of the last, with lighter-coloured foliage and later flowers. It is also employed as a stock for grafting. It should not be omitted to state that the mezereon is also valued as a stock, but *D. laureola* is *the* plant for the purpose.

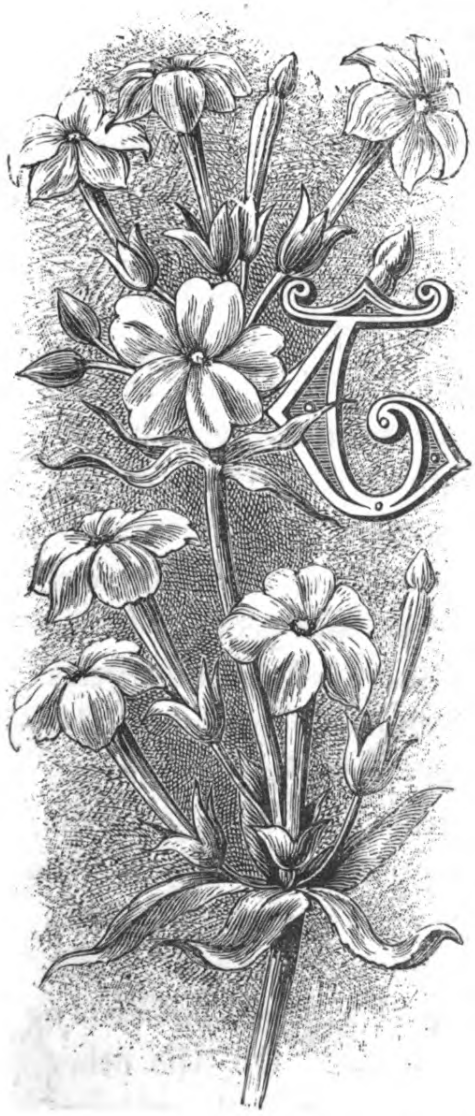
The better class of daphnes comprise *D. alpina*, a pretty shrub for the rockery, with white or rosy flowers; *D. collina*, a smallish arboretum or rockery shrub, with blush or pink-tinted flowers; and *D. cneorum*, a half-trailing shrub, possessing the finest qualities, and much to be desired in every well-kept garden. It is a true evergreen of neat growth, producing lovely rosy flowers, that are exquisitely fragrant early in the spring. For the dressed grounds this is a foreground gem, and hardy enough for any good garden south of the Trent, and for any garden north of the Trent if on the west of the great backbone that divides the hard from the soft climates of England.

Amongst the greenhouse daphnes the most important is the sweet *D. odora*, of which there are several varieties, pink, white, and variegated-leaved. *D. Indica*, with white flowers, *D. japonica*, with pink flowers, and *D. Blagayanum*, with yellow flowers, are worthy of attention. In places specially favoured by climatal conditions *D. odora* is hardy, and one of the finest out-door shrubs in the world. But generally speaking it is not hardy, and needs the shelter of glass.

It is better for the amateur to buy than to propagate daphnes. The seed requires two years to germinate under

the best of management, and under any other management it does not germinate at all. The grafting, as above remarked, is an easy task, but success depends on having at command a warm pit to promote the junction. As for soil, the mezereon and the laurel daphne prefer loam; all the rest require peat.

ABYSSINIAN PRIMROSE.



ABYSSINIAN PRIMROSE.

Primula verticillata.

THIS interesting plant reminds one of the handsome Japan primrose (*Primula Japonica*), by the manner in which the flowers are produced in a series of whorls; but the snowy primrose (*P. nivalis*) has the like habit, and some others indicate that a very slight change of conditions would induce them to present their flowers in a spiral arrangement, instead of a simple umbel. The Abyssinian primrose was first received in this country in the year 1825, under the name of *P. involucrata*, and was first figured in the *Botanical Magazine* in the year 1828, under *t.* 2842. In its original form it was a somewhat poor plant, with small flowers borne on long pedicels amidst a profusion of floral bracts and with conspicuous green calyces. Its native country was the Arabian province of Yemen, on the margins of rivulets on Kurma, a calcareous mountain in north latitude fourteen and a half degrees, that is, towards

the southern extremity of Arabia Felix. A much improved form—considered from the floricultural point of view—was introduced by Messrs. Veitch and Son, of Chelsea, in the year 1872; this first flowered on the rockery at Kew in the year 1873, and was figured by Sir J. D. Hooker in the work cited above, under *t.* 6042. This later introduction is called *Primula verticillata, var. sinensis.* It is of robust habit, producing a whorl of oblong leaves, from the centre of which springs a stout flower-stem, bearing one, two, or three distinct whorls of flowers, which are larger, more richly coloured, and on shorter pedicels, with inconspicuous calyces, and therefore distinct from those of the earlier form, and considerably handsomer.

Collections of primulas are in request for rockeries, and although a few of the sorts need special and peculiar treatment, a considerable proportion of the most useful species readily conform to one simple system of cultivation. The vigorous-growing kinds require a deep sandy soil, always moist, and some amount of shade from the midday sun in the heat of summer. There is no primrose known to our gardens that can with impunity endure drought as a sempervivum or sedum can; all primroses suffer if much roasted by sunshine, and a shallow, poor soil will but rarely afford any of them a suitable root-hold. On the other hand, most of the diminutive species bear full exposure without harm, provided their roots have the advantage of a deep, moist bed. It is advisable, when collections are planted on a rockery, to associate them in groups as nearly as possible, so as to subject them to uniform treatment, and thus insure regular attention. When dotted about in places distant from each other, a few may be forgotten at times when extra attention is required. During

dry hot weather water should be freely bestowed upon them, and this is more effectually accomplished when they are planted in groups than when they are distributed over a considerable space as isolated plants.

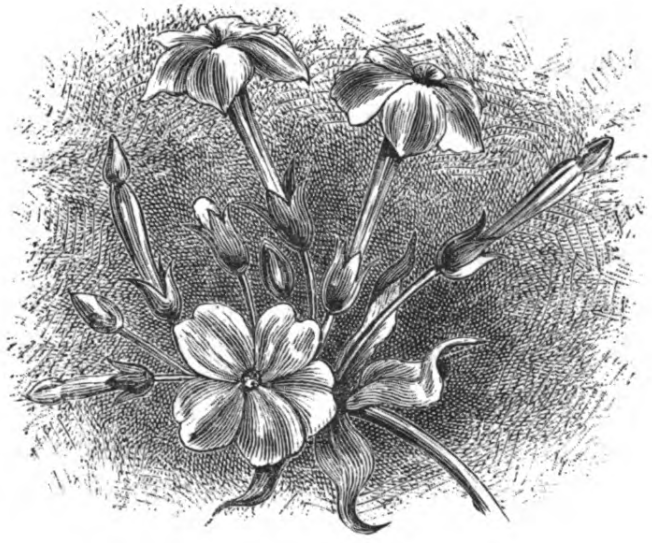
Amongst the more desirable of primulas for a rockery may be named *P. auricula* in its original wild form; *P. capitata*, in the way of *P. denticulata*; *P. farinosa*, *P. integrifolia*, *P. latifolia*, *P. marginata*, *P. purpurea*, *P. rosea*, *P. villosa*, and *P. verticillata* in its varietal form of *sinensis*.

The finest of the hardy border primulas are *P. Japonica*, a truly grand plant adapted for planting in masses; *P. Sieboldi*, which supersedes the old and much favoured *P. cortusoides*, and finally the varieties of our own native *P. vulgaris*, which are much less known in gardens than they deserve to be. All these primulas which we select for the border are suitable also for rockeries, but they are not, in a strict view of the case, rockery plants; and, moreover, to enjoy them thoroughly, they are needed in quantity, repeated and repeated in all the variety possible, from the lovely double white and crimson primroses to the rich gold-laced polyanthuses.

In the routine cultivation of primulas, the raising of stock from seed is a matter of considerable importance. All the kinds may be multiplied by division, and in the case of double varieties that do not produce seed, this is the only course of procedure possible. But division should never be resorted to if seed can be obtained, for large specimens are always to be desired, and a vigorous progeny may be best secured by resorting to seeds.

The seeds of primulas may be kept until the spring following the season that produced them, but no longer, for

they soon perish. The best practice is to sow the seeds as soon as they are fully ripe, and unless the quantity be considerable, they should always be sown in pans or boxes, and kept in frames until the young plants have made some progress. It is of the utmost importance to keep the soil in which the seeds are sown constantly moist, for if dry for any length of time a considerable proportion of the seeds will perish. It matters not how rare or how common the sorts may be, this rule must be strictly followed, or success will not be achieved. As regards the general management, it must be kept in mind that these are hardy plants, and require light and air, except at times when severe winter weather compels one to keep the young plants sufficiently sheltered to be safe.



RUDDY ROCK ROSE.

THE ROCK-ROSE.

Helianthemum vulgare.

THE ROCK-ROSE may be more properly called a sun-rose, for a Helianthemum must be a flower of the sun. The plants of this class known to gardens are very beautiful and thoroughly useful. The rock-roses belong to the Cistus family, which love sunshine, and produce gay flowers. The best of the group is *Cistus ladanifera*, a hardy shrub in the south of England, and one that makes an impression when seen at its best, and very often it is in the tiny front garden of some old-fashioned house in a sleepy country town that this gay cistus will be found in perfection. From thence to the grand rockery is a great transition, but having made it, we see the cistus again and amid grander surroundings. But in the many gardens where such plants are wanted to illustrate the variety and splendour of true garden vegetation, we shall scarcely find any cistus or any sun-rose.

To begin with sun-roses is easy enough, and it is easy to go on with them. The best place for them is the sunny ledge of a good rockery, on a sandy or calcareous soil, where they will take care of themselves, spreading and flowering in the most delightful manner. But as we never know what we can do until we try, it remains to be said as regards the general subject of growing sun-roses, that they thrive fairly well on heavy soil and under the shade of large trees. In the arboretum at Hermitage a considerable collection of Helianthemums, generously supplied by Mr. Ware for experimental purposes, were planted on the margin of a mound consisting of heavy loamy soil, beneath the shade of ash and chestnut trees. The rock-roses stood the trial well; they grew with vigour, flowered with freedom, were altogether delightful, and occupied their shady mound for the space of nine years. The plants were very small indeed when first put into the ground, but they spread to the dimensions of many feet before their race was run. They were not in completer shade, because the morning sun reached them from open meadows skirting their side of the garden, and with the sunshine came sweet air from the east, which we may suppose they fully enjoyed.

The common Helianthemum is a variable plant, and may be varied beyond all present limits by the interesting process of cross-breeding. The varieties in cultivation comprise white, yellow, rose, crimson, and purple flowers in several shades, mostly single, but a few are double, and there is one sort with variegated leaves. Nor are we restricted in our choice to varieties of *H. vulgare*, for *H. rosmarinifolium*, *H. pilosum*, and *H. croceum* offer their several attractions, and at least a hundred other species are available for such as seek for them and know where to find

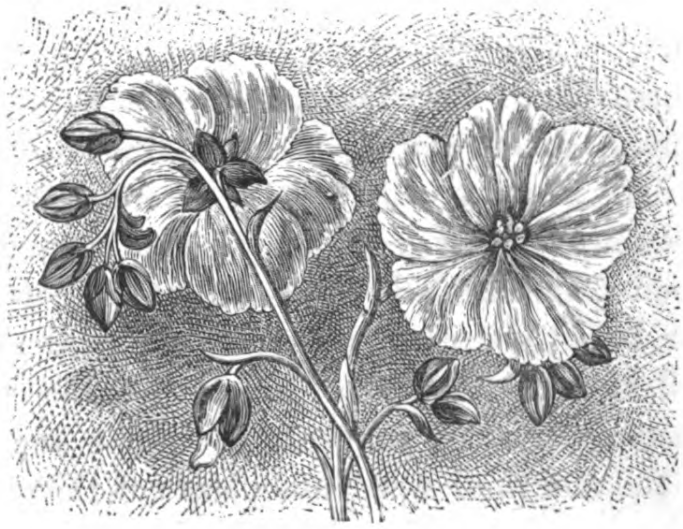
them, which we confess we do not, although they have a place in the books. A very beautiful species is *H. tuberaria,* a herbaceous plant, native of South Europe, producing ribbed leaves and yellow sun-roses of the most exquisite beauty; and only needing what may be termed good conditions on the rockery. A fine plant intermediate in character between a sun-rose and a cistus is *Helianthemum ocymoides,* an erect-growing shrub about two feet high, with ovate lanceolate leaves and flowers bright yellow, with a blotch at the base of each petal.

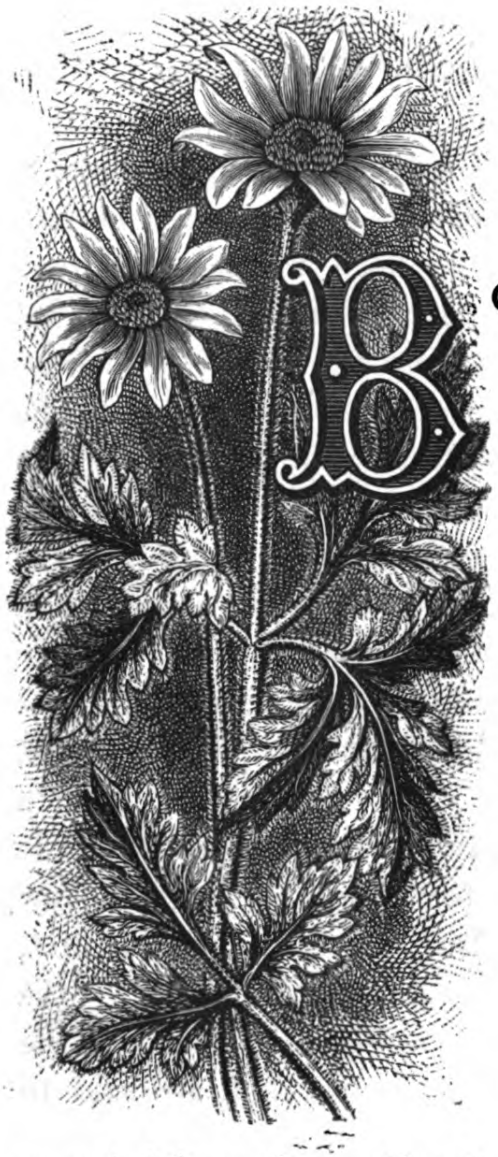
The species of Helianthemum and Cistus are mostly natives of South Europe, a very large proportion being found on the sunny Spanish peninsula. Hence a dry soil and a sunny aspect are natural requirements, and where anything like a collection exists, it will be found impossible to keep it together unless duplicate plants are reserved and wintered under glass, a brick pit being the most suitable for this purpose. But the common sun-rose is one of the hardiest of garden plants, a true native of Britain, and spread over Europe from the Arctic circle to the Mediterranean.

All these plants may be easily propagated by cuttings of the young shoots placed in a moderate heat. But to insure variety, and to make plants in considerable quantity, there must be systematic saving and sowing of seeds. It is a good plan with all choice subjects to sow the seeds in pans or boxes, and give the young plants the shelter of glass until they are somewhat advanced. But those who cannot manage in this way may sow on a sandy, sunny border in the month of April, and plant out the seedlings as soon as they are large enough to be handled with safety. The soil should be sandy and calcareous for all except the

common species, which, as remarked above, is not particular as to either soil or aspect. A simple way to shelter tender plants of this class during frosty weather is to insert a few boughs of evergreens near them, so as to overhang them slightly.

For the tasteful display of a collection of sun-roses and cistuses we need stony banks, balustrades, and other similar situations, where the plants can spread and trail and form natural festoons and falling masses, so as to approach the wildness of nature, but not to lose the order and neatness which belong to art. The trim garden is usually agreeable, and the trimness sets off the beauties of many plants, but the "negligence of nature" has also its charms. It is the triumph of art to conceal art, and in the garden it is pleasant sometimes to have visible reminders of the freedom that prevails in the world where "the crooked scythe and spade" have not touched a clod, nor damaged a leaf, nor put anything in order to gratify human notions.





MOUNTAIN WIND-FLOWER.

Anemone apennina.

BOTANISTS have too much to say about British plants that are possibly not British. This lovely blue anemone occurs wild in Bedfordshire, Surrey, Herts, and Berks. One writer calls it an alien, but adds that it is spread through the land from Devon to Banff, and has been long established in Surrey. This statement may be right, but it *may* be wrong, and the evil to be complained of is that positive statements are founded on negative evidence. We will suppose that long before the British islands were separated from the continent of Europe, this anemone, with others, such as nemorosa, pulsatilla, and ranunculoides, had its place here, and assisted to maintain the floral connection between what is now Britain and the great lands eastwards and northwards of which it was the western promontory. The conditions may have been such that

the plant was never widely spread or in great abundance anywhere, and when the separation took place it was made to appear like a waif or stray for all time to come, because it was not in force enough to assert its nationality. This is all supposition, and much of the botanical doctrine is no better. Of this we feel satisfied, that many plants have from the earliest ages obtained a hold on certain parts of these islands, but have been unable to spread themselves, and they now appear as accidents, whereas they are as truly indigenous as any vegetables known to us. Man is a terrible destroyer of plants, and at the same time a most effectual preserver and multiplier. Since he came upon this scene the vegetation must have altered much, not only as a consequence of natural changes in the climate, but of man's operations as a hunter, a forester, a farmer, and a perpetual consumer of everything eatable the earth produces. We will suppose the flowers of some particular plant to be much liked by man, by his cattle, and by wild birds and beasts. How long would such a plant last in a country abounding with animal life? It would be quickly obliterated, for it would have but few opportunities of ripening seeds. As a matter of fact, man stands almost alone as a consumer of flowers: the animals, of whatever kind, but rarely touch them; the family cow will not eat the buttercups that are said to give their colour to the butter, and the bee that sucks the honey from a flower rarely does it any harm, but rather promotes the spread of the plant by brushing the pollen from the stamens, and so causing the fertilisation which insures a growth of perfect seeds. As for man, he plucks flowers because their beauty impresses him, or because he wishes to obtain their odours and their

essences; he destroys many by draining the land, others by burning the land, and others again by clearing away the woods that certain flowers need for shelter and protection. The botanists all agree in declaring that this lovely anemone is not a native, but as they know nothing about the way in which it first obtained its foothold here, we are not inclined to accept their declarations.

The mountain anemone, or Apennine windflower, is in every proper sense of the term a rockery plant. It attains to its highest luxuriance of growth in alpine pastures, the pure air, strong light, and abundant humidity of the mountains favouring the production of large flowers of the most delightful colour. Its serrated leaves provide a soft green groundwork for the large blue flowers, which rise from four to six inches, and are in perfection during March and April, occasionally lingering on to the middle of May. Nevertheless, though loving the breezy heights, this sweet flower readily accommodates itself to the conditions of garden cultivation, and is not easily overpowered by other robust habited plants, for when established it spreads in dense tufts, and holds its own against all weather and all vegetable antagonists. As a plant for pot culture, for the frame, or alpine house, it is invaluable, because it may then be set upon the parlour table if need be, but in the alpine house it helps to make a cheerful picture with other anemones and with the drabas, the smaller irises, the erythroniums, and the primulas that flower at the same time, rendering a genuine alpine house one of the best of toys for a true amateur of the garden.

As companions of *Anemone apennina* on the rockery, the following are admirably adapted, and will afford much delight:—*Anemone blanda*, flowers deep sky-blue, larger

than those of *A. apennina*, and appearing earlier. *A. fulgens* and *A. stellata* are nearly related; they are exquisitely beautiful, and give us scarlet, purple, ruby, rosy, and blush-coloured flowers. *A. nemorosa*, the native wood anemone, is a lovely thing, and various in its characters. We have single and double varieties; we have them white, blush, lilac, reddish, purplish, and rich sky-blue; and all are worthy of a place on the rockery, though they will also thrive in any good border. *A. palmata* is the cyclamen-leaved anemone, a fine plant with flowers glossy yellow or pure white. This species has both single and double varieties. *A. ranunculoides* is like the Apennine plant, but has yellow flowers. Finally, *A. sylvestris*, the snowdrop anemone, claims attention for its beautiful white flowers of large size freely produced on a groundwork of green leaves. Other more famous kinds may for the present be left to speak for themselves; it is enough to mention here a few of the finer varieties which are not so generally known.

PERSIAN CYCLAMEN

PERSIAN CYCLAMEN.

Cyclamen Persicum.

PERSIAN sowbread is not often put to the use the name suggests for it, but if the pigs had access to the florist's treasures, they would no doubt appreciate the flavour of the round corms or bulbous roots of the cyclamens. It would be a veritable case of casting pearls before swine to permit the experiment, and it is more agreeable to confine our attention to the flowers and give no further thought to the possibility of converting the roots into mild pork. Although introduced at least as early as the middle of the eighteenth century, this must be regarded as quite a modern plant, for its proper cultivation may be spoken of as a recent discovery. It was the settled custom of gardeners to give the plant careful frame cultivation until it flowered, and then to "dry it off" and

neglect it for some months, when it was again taken care of, in due time flowering again, unless, as often happened, it died through being forgotten. The consequence of this treatment was that its beauties were never fully developed, and there is some evidence of the poor state of the plant in the figure of it that appears in the *Botanical Magazine* in the year 1788 (*t.* 44). When the right way to cultivate the plant was discovered, a wonderful change took place; the flowers were enlarged in size, they became richer and more various in colour, more deliciously fragrant, and their profusion became a matter of astonishment. It is quite a common event to see Persian cyclamens with from fifty to a hundred flowers, all fresh and perfect, and we once saw a plant that must have had at least five hundred blossoms; it was presented at a meeting of the Floral Committee of the Royal Horticultural Society by Mr. Wiggins, on the 12th of February, 1884. That plant was at least seven years old, with a corm nearly as large as a baby's head. To grow such a plant is not exactly an easy task, but we shall describe the routine, and it will be at the discretion of the amateur to follow it, whether for the production of neat little plants or for giants of high renown.

It is of the utmost importance to begin with good seed. The best time to sow it is as soon as it is ripe, which will be in June or July. Sow in pans filled with a mixture of equal parts peat, loam, and leaf-mould, with silver sand added to cause the mixture to feel gritty between the fingers. The compost must be well chopped up and mixed, but must not be sifted; and the seed must be very lightly covered. A temperature of 75° Fahr. is required to get the seed up nicely, and a cucumber house

is the best place for the seed-pans because of the atmospheric humidity.

When the young plants appear the pans should be removed to a cooler position where there is abundant light and air. The little plants will grow freely if regularly watered and protected against any sudden changes or extreme conditions. Be careful not to give too much water, for that will render the soil sour, and put a stop to healthy growth altogether. As autumn approaches the growth will cease, but the plants must be kept under glass in a frame or greenhouse, and they ought never to be in a lower temperature than 40° Fahr., even when quite at rest.

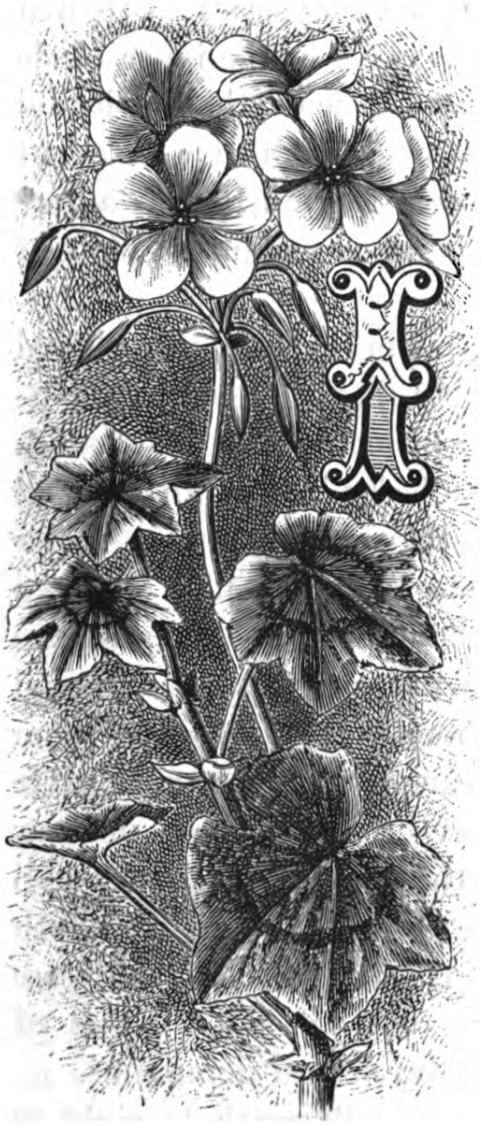
In October or November take out the little corms and pot them separately in small pots, using the same kind of compost as before. Now put them in a warm house, and they will soon begin to grow again, a temperature of 55° to 60° Fahr. being most suitable for them. They must be kept near the glass and have air at all favourable opportunities. Thus they will pass the winter, making a nice growth, and as spring advances they will go to rest. From the end of April until the end of August a cold frame in a somewhat shady situation will suit them better than a house, but care must be taken to protect them from cold winds and from all extreme conditions.

At the end of August they must be shifted into pots of five or six inches diameter. They should never have larger pots than they are likely to fill with roots pretty quickly, for if the soil become sour the plants will not thrive. For this potting prepare a compost of equal parts turfy loam, fibrous peat, and fresh dry horse droppings, with sufficient silver sand to lighten the

mixture. A half part of sand will probably be needed. Replace in the cold frame and let them remain there about a month, and then transfer to the greenhouse. A temperature of 50° Fahr. will suit them well; let them be near the glass, and give air at every favourable opportunity. They will flower grandly and compensate you for your trouble.

When the flowering is over let them go to rest, but do not distress them in any way, and take care they never become dust dry. When they have rested about a month repot them, and take care in doing so to remove all the old soil without doing any injury to the roots. When you have acquired some experience you may assist the bloom with liquid manure; but a beginner should not venture on this course, for the cyclamen is not a gross feeder, and a good bloom may be secured without the aid of any stimulant.

IVY LEAVED GERANIUM



THE

IVY GERANIUM.

Pelargonium lateripes.

IVY-LEAVED geraniums have obtained less than their fair share of attention, and the consequence is their merits as decorative plants are but little known. As they have been in cultivation about a hundred years, it is time they were appreciated by the public at large, for although not the most showy, they are beyond doubt the most beautiful of all the pelargonium or geranium family. The raisers of new varieties and those who cultivate specimens for exhibition have not been wanting in attentions to this class, for they have been greatly improved, and the double-flowering varieties raised by M. Lemoine, of Nancy, approach the wonderful in their exceeding loveliness.

In the open garden the ivy-leaved geraniums are useful to adorn vases and baskets, and they are available also as

bedding plants. They display their fine qualities best, however, when well grown in the form of pyramids for the conservatory, and a set of the newest varieties so treated would create a sensation anywhere, save in the inner circle of horticulturists, who are familiar with their splendid capabilities. To grow fine specimens is an easy task, but demands continuous attention, for we must have a free growth without coarseness, and an abundant display of flowers.

The cuttings having been struck in the usual way, should be potted into three-inch pots in a rather light compost, consisting of equal parts of loam, leaf-mould, and sharp sand. A fairly warm house will be the best place for them at all times except in summer, when they should remain under glass, and have free ventilation. When the pots are filled with the roots, the plants must be moved into the next size of pots, and care must be taken never to repot them until they have filled their pots with roots, and to give them no more pot-room than they can occupy in a reasonable space of time. None but an expert, who needs not our counsel, should shift one of these plants from a small pot to a large one, for long ere the large pot is filled with new roots the soil will become sour, and the plant will cease growing. The rule applies generally to plants, but is of special importance in the case of ivy-leaved geraniums.

By successive shifts the plants will reach to eight or nine-inch pots, and beyond that size it is not advisable to go. When removed from the three-inch to five-inch pots the compost should be somewhat more substantial than was used in the first instance, say mellow loam from rotted turf, well-rotted old hotbed manure, and either peat or leaf-mould equal parts, with the addition of sand sufficient to

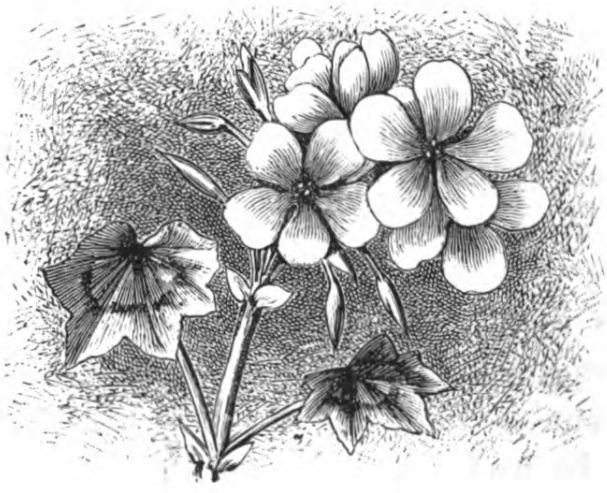
render the whole porous. Should this prove too strong, the proportion of manure must be reduced at the next shift, but a certain degree of vigour is needed to bring out the beauty of the plants. When they have reached specimen size, and have flowered, they should be shaken out of the old soil and have a moderate pruning, and be potted back into smallish pots to go through the same course of culture as before. Our practice, indeed, is to plant out those that have run their course, or to throw them away, trusting to young plants for specimens.

As regards the training, care must be taken to allow the growth some degree of freedom, for the severe hard lines that are produced by tying in closely make a mere burlesque of these elegant plants. In the early stages one or two light stakes will suffice; but as the growth progresses it will be well to insert three or four, or even more, and draw them together at the top to form a kind of cone. By training the leading shoots to these stakes and leaving the side shoots in some degree free, a neat contour without any hardness will be secured. In the event of the plants becoming thin at the bottom, it will be advisable to cut them back, and as soon as they begin to grow again freely to give them a shift to the next size. If crowded up with other plants they are certain to be thin at the base; they should therefore stand apart, so that the light plays equally upon them from head to foot. As a rule they require all the light they can get, but at times when the sun is high and the heat considerable, a little shade will be useful, and the path and the stage of the house should be sprinkled with water.

The following are grand varieties of ivy geraniums, and they are well adapted for first-class specimen culture :—

Albert Crousse, Comte Horace de Choiseuil, Madame J. Menoreau, Candeur Sarah Bernhardt, Beauté de Lyon, La France, Gloire d'Orléans, Marguerite Jacquot.

Ivy-leaved geraniums are occasionally employed with excellent effect as bedding plants, those with variegated leaves being most in favour. The best of the series for edging a bed is the Duke of Edinburgh, which has whiter leaves than any other kind, but grows freely and has a very bright appearance. Another good variety is L'Élégante, the leaves margined white and the flowers white. This is a lovely basket plant, and looks well on a tree-stump or hanging over a ledge of rock. A golden-leaved variety named *Aurea marginatum* will be useful where a yellow-toned edging is required. Each of these three when planted as edgings to beds will look better without than with their flowers; but when grown as basket plants the flowers add to their effectiveness.



SHOWY FEVERFEW

SHOWY FEVERFEW.

Pyrethrum roseum.

NONE of the familiar garden flowers has a better claim on our regard than the rosy pyrethrum. It may be pronounced at once the best flowering plant known for gardens in towns, and nearly one of the best for gardens in the country. The rosy pyrethrum, or showy feverfew, as the plant is perhaps more frequently called, is perfectly hardy; it is so neat in growth that it is ornamental when not in flower, and it will thrive in any soil or situation, provided it obtains a reasonable amount of light. But good conditions tend to good results, and to have a nice bloom of pyrethrums a little care must be taken with the several preliminaries.

First, then, for the bed or border. This should be good loam deeply dug and liberally manured. The plants

may be put in at any time that may be convenient, but the spring and the autumn are the best times to plant, a supply of the finest named varieties in pots having previously been secured. When first put in the ground a sharp look-out must be kept to protect the plants from slugs and wood-lice, but when the plants have begun to grow freely in the open ground these marauders will not care much about them. As the spring advances the flower stems will rise, and you will have to determine whether to support them or not. A neat way of supporting them is to drive in three stakes and pass strips of bast loosely round to form a kind of open cylinder. This must be neatly done, so as to be scarcely visible, leaving the growth somewhat free. We have a large collection, comprising all the named varieties, and we never give support to any, but let them fall about as they please. This plan answers well when the weather is fine, and the display is delightful. But bad weather makes a difference, and then, we must own, the plants that are properly supported fare the best. In some gardens pyrethrums die out in three or four years; in others they appear to defy time and death, and last any length of time. It is a good practice, however, to take them up every third year, and deeply dig and manure the soil; then divide, and replant. A still better practice would be to plant in fresh soil altogether; for continuous occupation of the same spot, even if periodically dug and manured, tends to deterioration.

The best time of year for lifting and dividing is August or September, and it will be prudent to pot a few small pieces of all the best varieties, and keep these potted plants in a frame during the winter, to plant out in spring. It is just possible that a severe winter may kill a few

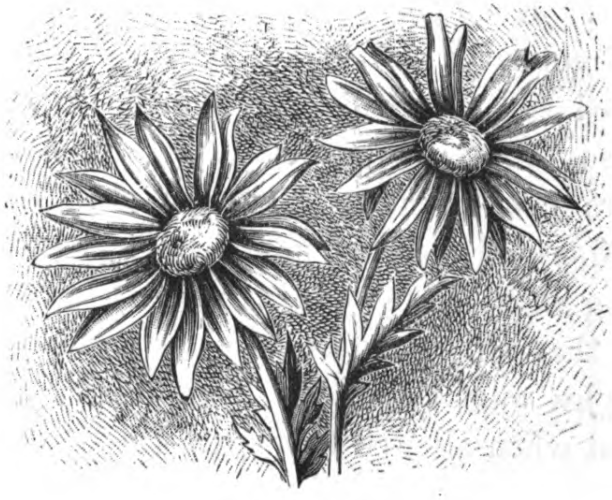
of the plants that were disturbed in the autumn, in which case the potted plants will be ready to take their place.

In the cultivation of pyrethrums there are one or two points of considerable importance. In the first place, when very young plants are put out in the mixed border they are liable to be injured, if not quite destroyed, by digging or other operations during the winter, as they retain but few leaves from November to February. In the next place, they like a strong rich soil, such as will retain a fair proportion of moisture. They are furnished with innumerable small roots; therefore the soil should be broken up fine to a good depth. Newly-purchased plants are generally small, and it is much better to plant them in a well-prepared bed in the kitchen garden for a year or two, to give them a good start, than to put them in the flower border. Keep the soil about them free from weeds, and supply frequently with liquid manure. If they are in a well-drained soil they will enjoy a rather large supply of water, and, so far as growth and the number of flowers produced are concerned, a dripping time through the months of May and June is eminently favourable to them. Overcrowding must be avoided, as pyrethrums produce so many roots that they exhaust the soil for some distance. Large examples ought to be at least thirty inches apart each way, and when allowed this space they will, if the soil is in good condition, produce from thirty to fifty flowers of fair average quality.

Pyrethrums produce seed freely, and very often crowds of seedling plants appear around the old stools. It is advisable to cut off the flowers as fast as they fade, and so prevent the growth of seed; but if seed be wanted it is

easily obtained, and the best way to treat it is to sow as soon as ripe, and give the seedlings frame culture through their first winter, and plant them out in March or April.

The following are the best twenty-four varieties, single and double :—Achille, Aurora, Ceres, Captain Nares, Dr. Livingstone, Émile Lemoine, Floribundum plenum, Gustave Heitz, Hermann Stenger, Haage and Schmidt, Iturbide, La Vestal, Lady Derby, Michael Buchner, Monsieur Barrall, Mont Blanc, Nancy, Ne plus Ultra, Peau Rouge, Placida, Solfaterre, Striatum plenum, Uzziel, White Aster.



STAR OF BETHLEHEM

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old name, and the dearer perhaps for [illegible] In Lyte's "Dodoens" (157[illegible]) it is described [illegible] oryon," but with no allusion to the sacred story. The author records finding it in plenty in the neighbourhood of M[illegible]es, where we have ourselves gathered the flowers on the roadside, as we have in many other places in the Low

STAR OF BETHLEHEM.

Ornithogalum umbellatum.

WHEN the great poet asked, "What's in a name?" he was speaking for Juliet. Had he spoken for himself, we might deem him at the time of highest inspiration less prophetic than was his wont. In truth there is much in a name, even in the name of "rose," that illustrates the argument; but much more, perhaps, in the name now before us. When the modest star of Bethlehem first acquired its pretty name there is none to tell, but it is an old name, and the dearer perhaps for its antiquity. In Lyte's "Dodoens" (1578) it is described as the "white felde onyon," but with no allusion to the sacred story. The author records finding it in plenty in the neighbourhood of Malines, where we have ourselves gathered the flowers on the roadside, as we have in many other places in the Low

Countries, and particularly on the skirts of field-paths near Haarlem. But Dodoens comes near to the adoption of the familiar name when he describes the goat's-beard, or scorzonera (also-called viper's grass), as "starre of Hierusalem" and "Joseph's floure." In Turner's "Herbal" we fail to find any mention of the plant, and to search in Clusius or Fuchsias would probably be waste of time. But in Gerarde's "Herbal" six species of *ornithogalum* are set forth, as the "star of Hungary," "the lesser Spanish star," the "star of Bethlehem," "the great Arabicke star-floure," &c. Gerarde begins the story by saying, "there be sundry sorts of wilde field Onions, called 'Starres of Bethlehem,' differing in stature, taste, and smell, as shall be declared." Parkinson, both in the "Theater" and the "Paradisus" describes the plant correctly, though briefly, regarding it as scarcely worthy of notice, clearly showing that familiarity had bred a contempt to which he, as a master botanist, should have been superior, not in favour of this plant merely, but with respect to even the humblest weed.

It would thus appear that the familiar name of this plant is of comparatively modern origin. Its meaning must be obvious to all, for the flower may be likened to a star, more especially when the green stripes on the outside are conspicuous; and its association with Bethlehem as representing the star that guided the Magi to the manger in which Jesus was born is not so extravagant as at first may appear. This plant is the *ornithogalum*, the bird's milk-flower, and must have been compared with the milky secretion with which pigeons nourish their young, and thus it would be the dove's milk-flower. In common with many liliaceous plants, the roots are edible, and

were in ancient times eaten, both raw and cooked, as Dioscorides testifieth. A very trivial blunder in copying or translating might convert dove's milk into dove's dung, and certain it is that Linnæus and later writers have regarded this plant as the dove's dung, mentioned in the Second Book of Kings vi. 25: "And there was a great famine in Samaria: and, behold, they besieged it, until an ass's head was sold for fourscore pieces of silver, and the fourth part of a cab (about half a pint) of dove's dung for five pieces of silver." But we are not bound to suppose an error anywhere in the text, because Dr. Royle, and before him Bochart, declare that "pigeon's dung" is a name in common use amongst the Arabs for vegetable substances. In Smith's "Dictionary of the Bible" the Rev. William Drake says, "there seems good reason for taking this as a literal statement," but adds that "the Arabs call the herb Kali sparrow's dung." Mr. Grindon, in his admirable work on "Scripture Botany," regards the passage as referring to the chick-pea, which is the meanest kind of pulse.

Let us return to the more agreeable subject of the place the plant has acquired by its familiar name in the midst of previous associations. It is the star of Bethlehem that shines amid the green herbage of the spring, and pleasantly promises that the summer is coming, just as the other heavenly star gave promise that the Sun of Righteousness would arise with healing in His wings. How fitting a theme for such a poet as Henry Kirke White, whose sympathies were ever tenderest towards holy things!

The species of *ornithogalum* are far too numerous for any moderate amateur to be justified in inspecting them. The best of those that may with safety be planted out

in the shady border are *O. umbellatum*, *O. pyrenaicum*, *O. nutans*, and *O. pyramidalis*. The first will thrive under the deepest shade of trees, but the others like a little sunshine. The second in the list is the plant known as "Bath asparagus," the flower-stems being sometimes cooked and served as a table vegetable in the ancient and beautiful city of Bath.

IXIA

THE IXIA.

Ixia crateroides.

IXIAS and sparaxis differ by small tokens, but both require the same kind of cultivation. They are natives of South Africa, and require more sunshine than we can order for them, even if we devote the best of our time to tapping the barometer. It has been the custom to speak of these flowers in a hushed sort of manner or in whispers, but there is nothing gained in that. It is as easy to insure a fine bloom of them as of hyacinths or tulips, but, generally speaking, they do not succeed as hardy bulbs in any part of Great Britain, but are hardy and prosperous in the Channel Islands, and more particularly in Guernsey. It follows, therefore, that they are better adapted for pot culture than for the open ground; and the surest way to

enjoy them is to buy a new stock of bulbs, or, more properly speaking, "corms," every year, as by such means you insure a brilliant display at small cost of either money or labour. In Guernsey the sun-heat is sufficient to ripen the growth perfectly, and the bulb merchants obtain their annual supplies from thence, or from the south of France or Italy. It is the comparative coldness of the English summer that renders it difficult to flower the roots a second time; but this difficulty may be surmounted, and it is our business to show the way.

For a pretty display of ixias and sparaxis we provide, in the month of September, a nice mixture of sweet leaf-mould one part, fibrous peat three parts, and silver sand two parts. A good sandy peat, containing a reasonable amount of fibre, will suffice without any admixture, but it is not everywhere to be had ready-made from Mother Earth. For all general purposes, five-inch pots, three to five roots in a pot, will be the best rule as to sizes and numbers. But large pans, if somewhat shallow, are equally suitable. In any case, it is folly to spread the roots over a great space, and five in a five-inch pot will be none too many for a good head of bloom. Crock the pots with care, fill nearly full with the soil, and then place the bulbs, and cover them just enough to put them out of sight. The soil should be a little moist in the first instance, in which case there will be no necessity for giving water. But if the soil is dry, give them one dose of water, and pack them all away in a cold frame; draw the light over, and leave them to manage their own affairs for a little while.

If kept safe from frost, with no more moisture than just suffices to encourage root-action, they will in due time put up their green spears, and show that they will

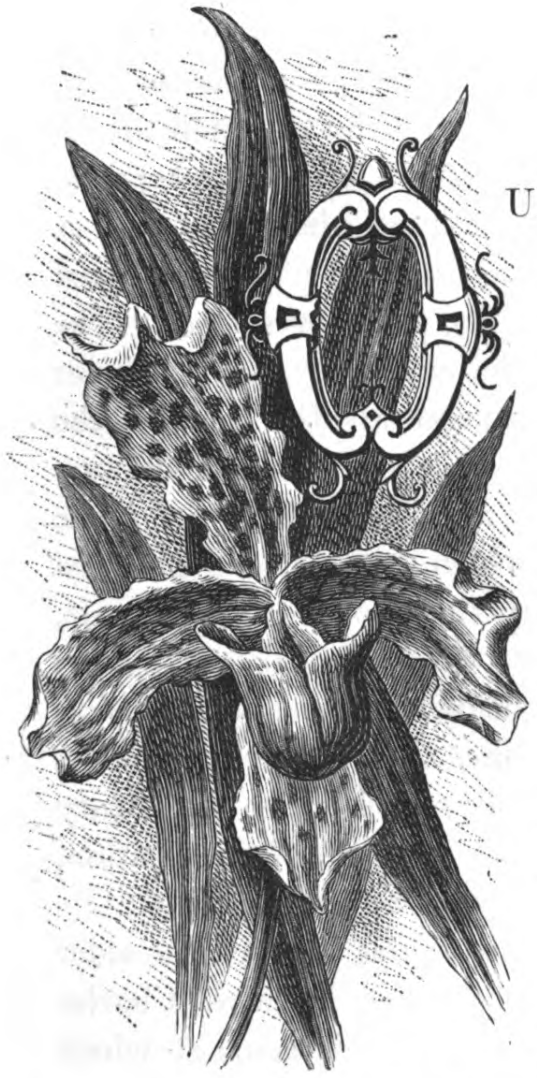
endeavour to do their duty. Now it is of very great importance not to give them much water, but at the same time they must not be quite dry. When there are visible signs of growth, remove the plants to a warm greenhouse, and increase the supplies of water as the growth advances, taking care always to avoid excess, and at the same time keeping them near the glass, and giving them as much air as is usually allowed in winter to plants that are known to be nearly hardy. As spring arrives the flowers will be showing; they will require more liberal supplies of water, more air, and perhaps a little staking and tying to keep them in order nicely. Your reward is at hand, and the beauty of the bloom will justify your endeavours. When the bloom is past, put the plants out of doors in a sunny situation on a bed of coal-ashes, and take care that you do not now neglect them.

The leaves will die down soon after the flowers are past, and then there must be an end of watering. If it be a very hot summer, the ixias may be left alone to go quite dry, and to roast into perfect ripeness, as in the hot sandy soil of their native fields is the proper course of events. But in a cool summer it will be good practice to take all the pots to a sunny greenhouse, and lay them on their sides, on any stage or shelf that can be spared, full in the sun. Being thus properly cooked, they will flower again, and you have but to shake them out about the middle or end of September, and re-pot them in fresh pots and fresh soil, to insure another bloom; and so on from year to year, so long as you have patience to do justice to ixias.

Now for another system in which pots are not required. Make up a bed of sandy peat under a south or west wall, and preferably next the wall of a hothouse. The bed

must be in a frame with lights; it must be well drained, and it must have a sunny exposure. Plant the roots in rows across, three inches apart in the rows, and the rows six inches asunder. This must be done in September or early in October. Give the least amount of water possible to be safe, but moisture the roots must have. Make use of the lights judiciously, giving air as often and as long as possible, and above all things taking care not to push the growth. You will in due time have a splendid bloom. And to speak the plain truth, to secure a good bloom is easy enough; the grand thing for the cultivator is to bloom the same roots a second time, a third time, a fourth time, and so on, and with each year's growth to obtain a supply of offsets. To do this you must encourage your plants to flower freely and to complete their leaf-growth, and then you must let them go quite dry, and put on the lights to help on the roasting process.

LADY'S SLIPPER



LADY'S SLIPPER.

Cypripedium longifolium.

OUR lady's slipper is the hardy *Cypripedium calceolus*, which is dedicated to St. Etheldreda. Strictly speaking there is no other lady's or "ladies'" slipper, and the familiar generic name of this group of orchids is therefore, in a certain sense, apocryphal. But the world has its own way in disposing of such matters, and we do not intend to darken these pages with any dry discussion.

The *cypripediums* are the most attractive of all the orchids for the earnest student of plant form, because they illustrate in the most patent manner the true theory of the construction of an orchid. On this point a few remarks may be at once useful and interesting. An orchid flower consists of fifteen parts, in five series of three each. To find these will rarely be an easy task, for all kinds of

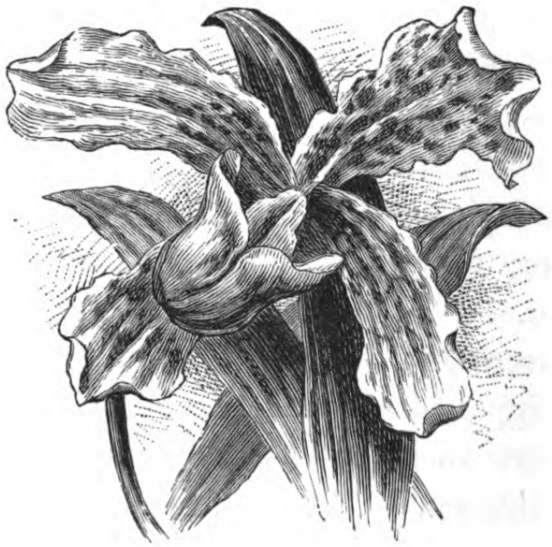
variations are played by Nature on the ever-ruling simple tune. But in the study of an orchid, the five series of three each must be sought, and if not found, must be in some way accounted for. Here is the true architectural theory—three sepals, three petals, three stamens, three pistils, and three carpels. In the orchid before us the topmost piece, or banner, is a sepal; and the question arises, Where are the other two? They are united, and partly hidden behind the pouch, or labellum: that is to say, as one sepal forms a banner above, the other two conjoined form an apron beneath the centre piece, or slipper. The two side pieces are petals, and the slipper, or pouch, or labellum, is also a petal. Amongst all the orchids, the cypripediums stand alone in respect of their production of three stamens; but here is another difficulty, for the casual eye can find but two, which are placed right and left of the column. Where is the third? It is sterile, and placed between the other two. The three stigmas are confluent, and appear as one below the anther, being called *the* stigma in descriptions, because of its evident existence. As for the three carpels of which the ovary consists, these will appear only as the result of fertilisation, and at a later stage in the history of the flower.

The singular structure of the orchids inspired the elder Darwin with a song, and the younger Darwin—Charles—with a passion for a special study, the outcome of which was a remarkable book on orchids generally. As regards the uses of the slipper, Mr. Darwin's work is rich in proposals for the careful observer. He says: "Cypripediums differ from all other orchids. An enormous amount of extinction must have swept away a multitude of intermediate forms, and left this single genus, now widely dis-

seminated, as a record of a former and more simple state of the great orchidean order." Having described the flower, he says: "As the two anthers stand behind and above the lower convex surface of the stigma, it is impossible that the glutinous pollen can get to this, the fertile surface, without mechanical aid. An insect could reach the extremity of the labellum, or the toe of the slipper, through the longitudinal dorsal slit; but, according to all analogy, the basal portion in front of the stigma would be the most attractive part. Now, as the flower is closed at one end, owing to the toe of the slipper being upturned, and as the dorsal surface of the stigma, together with the large shield-like rudimentary anther, almost close the basal part of the medial slit, two convenient passages alone are left for an insect to reach with its proboscis the lower part of the labellum—namely, directly over and close outside the two lateral anthers. If an insect were thus to act—and it could hardly act in any other way—it would infallibly get its proboscis smeared with the glutinous pollen, as I found occur with a bristle thus inserted. . . . Thus an insect would place either the flower's own pollen on to the stigma, or, flying away, would carry the pollen to another flower. . . . . We thus see how important, or rather how necessary, for the fertilisation of the plant is the curious slipper-like shape of the labellum in leading insects to insert their probosces by the lateral passages close to the anthers." The cypripediums alone possess glutinous pollen grains, and with them the peculiar mechanical construction requisite to the accomplishment of fertilisation.

The cultivation of the tender species of cypripedium is a simple matter where plant growing is fairly well under-

stood. They are terrestrial orchids, requiring a compost of peat, loam, and silver sand, with plenty of water when growing freely. The most generally useful is our old friend *C. insigne*, which requires a warm greenhouse, and careful management as regards air-giving and shading. The species that require the stove are usually potted in a mixture of sphagnum moss and peat, with a considerable admixture of small crocks. As for the hardy kinds, a shaded and very moist peat bed may be recommended, and if small grasses and other very neat weeds are allowed to grow up with them, there will be no harm done; but coarse weeds must not be allowed. The loveliest of all the hardy orchids is *Cypripedium spectabile*, the rosy pouch of which is matchless in its colour.



DOUBLE PRIMROSE

DOUBLE PRIMROSE.

Primula vulgaris var.

BY the ridiculous title *Primula vulgaris var.* you are to understand that the plant before you is a garden variety of the common yellow primrose. That being settled, we hereby record that the variety figured is in some gardens labelled "Alfred Dumesnil;" and assuredly it deserves a label. Primroses, single and double, are the most familiar of garden flowers, but they are coy beauties, and require coaxing. The happy appearance of the primroses in gardens will suggest to the uninitiated that it is a most easy matter to manage them. Well, so it is, when the conditions are favourable, for, in fact, they manage their own affairs with the most perfect success imaginable. But they are, we repeat, coy beauties, and one reason why you see them looking happy in gardens is that when

they are unhappy they shuffle off their mortal coil very quickly, and are thereafter not seen at all.

There are fully thirty garden varieties of primroses worth growing, comprising single and double flowers of all colours except true blue. They are all beautiful, but the double white, double lilac, and double red are exquisitely lovely, and worth any amount of trouble to insure a free growth and a perfect bloom. But observe, further, that they require a deep moist loamy soil, a partially-shaded situation, and to be often looked at, or they will not thrive. It must be remembered, also, that these flowers require a comparatively pure air. They are not town flowers, and therefore in a town garden one rosy pyrethrum is worth fifty primroses, whether single or double. But not a poor soil, not a smoky atmosphere, not a full blaze of summer sun is so decidedly deadly to these plants as dryness at the root. A dry soil is fatal to them, and therefore when there is any doubt about their doing well, be careful to water them freely all through the summer season. As remarked before, they require a deep moist loamy soil, but they will thrive in clay, sand, or peat, if in the original arrangements it is kept in mind that a free rooting ground and constant moisture are essential. If you propose to grow these plants on poor sand or stubborn clay, you have but to dig deep, break up the staple well and mix with it a liberal allowance of fat manure, and the rest is easy. They must have food, they like shade and moisture, and when quite happy in their circumstances they grow "like weeds."

The multiplication of the choicer kinds of primroses is effected by division, and the months of May and June are the most suitable for the operation, because there is a long

growing season before the plants to enable them to become established before they are called upon to make a show of flowers. But there is great danger of the destruction of the stock when inexperienced cultivators divide their plants in summer, and our advice to all such is to leave them undisturbed until they become large thriving clumps, and then to divide them in the month of August. In the meantime give them liberal supplies of water in dry weather, and if the soil is known to be somewhat poor, give weak liquid manure once a week all through the growing season. Be not alarmed at the fast growth of the leaves, for in proportion to the leaf-growth in summer will be the splendour of the flowers in the succeeding spring. All the hardy primulas are happy on the lower shelves of a good rockery, but our *Primula vulgaris* in all its forms is a border flower if need be, though best at home in the shady parts of a half-wild garden where foxgloves, and large-leaved saxifrages, and Solomon's seal, and day lilies are at home, with perhaps glorious tufts of male fern and lady fern, and royal Osmund, and the most delicious *Equisetum sylvaticum.*

The primrose was always dear to the sentimental, and has been well cared for by the poets. Well indeed is its advent described in Kirke White's poem beginning—

> "Wild offspring of a dark and sullen sire!
> Whose modest form, so delicately fine,
> Was nursed in whirling storms
> And cradled in the winds."

Then there is Mrs. Hemans's poem, of which this is the first stanza :—

> "I saw it in my evening walk—
> A little lonely flower ;
> Under a hollow bank it grew,
> Deep in a mossy bower."

Clare's cheerful lines begin with a welcome that touches the heart of every reader—

"Welcome, pale primrose! starting up between
Dead matted leaves of ash and oak, that strew
The lawn, the wood, and spinney through,
Mid creeping moss, and ivy's darker green."

And, to give one more quotation, there are Herrick's lovely lines to primroses filled with morning dew—

"Why do you weep? Can tears
Speak grief in you
Who were but born
Just as the modest morn
Teem'd her refreshing dew?"

DOUBLE BUTTERCUP.

DOUBLE BUTTERCUP.

Ranunculus acris, fl. pl.

A VARIETY of bachelor's buttons is to be found in Queen Flora's wardrobe, but all alike are adapted to make gallants look gay. The common scabious (*Scabiosa succisa*) is a blue bachelor's button; and the white campion (*Lychnis dioica*) offers us both white and rose-coloured buttons, so constructed that they can be fitted into a small button-hole, and will remain there without requiring to be sewn on. But the flower before us is the real Simon Pure, and carries gold enough to gild all the rest.

There are three British species of buttercup, so nearly alike that a young botanist may be pardoned for not soon perceiving the characters that distinguish them. The earliest to flower is *Ranunculus bulbosus*, which has a

bulbous root like a little turnip. This has a bold yellow flower, the sepals of which turn downwards. *Ranunculus repens* is the creeping-rooted buttercup, with large glossy flowers. It occurs in every variety of soil, but always in an open situation, and when much exposed is the most splendid flower of its family. A few years since we saw vast quantities of this species in some new roads connected with the deserted docks near Rotterdam. The plant had spread amongst the loose stony soil of those roads, and all traffic being abandoned through a commercial collapse, the buttercup had that part of the world all to itself, and the flowers were of great size, intensely yellow, and very highly varnished. The third in the series is *Ranunculus acris*, the acrid meadow crowfoot, more of a meadow and pasture plant than the last, and only a shadow less beautiful. This is the species to which we are indebted for the double variety here figured. But all three produce double flowers, and, in fact, *R. repens* produces two double varieties, which are unequal in quality, the best of the two being of dwarf growth and neat habit. Any of these are the mary-buds of the poets, for the sentimental eye does not recognise the distinctions of the botanists, which are often as trivial as the fancies of the versifiers, but less attractive, and perhaps in the end less useful.

The hairy buttercup (*R. hirsutus*) comes near to the foregoing, though smaller and paler in colour; but it produces a double variety to make its resemblance the more complete. Of the other British crowfoots or buttercups we need not speak, for they are scarcely to be reckoned garden flowers. There are, however, several valuable plants in the genus respecting which a few words may be offered with advantage.

The most generally useful of the garden crowfoots is the double variety of *Ranunculus aconitifolius*, popularly known as Fair Maids of France, a name betraying the origin of the plant. The slender-stemmed crowfoot (*R. amplexicaulis*), is an exquisite beauty, with grey foliage and pure white flowers. A group of Alpine species claims the special attention of the cultivator of choice rock-plants. They are all most lovely. *A. anemonoides* is very dwarfed in growth, with finely-divided leaves and purple-tinged white flowers. *R. alpestris* agrees generally with the latter, but is distinct enough for garden purposes. *R. glacialis*, the glacier crowfoot, is the most dwarfed of all, forming a little tuft, crowned with purple-tinted white flowers. The cyclamen-leaved crowfoot (*R. parnassifolius*) is very distinct in leafage, with showy yellow flowers. The rue-leaved crowfoot (*R. rutæfolius*) has white flowers with yellow centres, the leafage being distinct. Finally, to complete this list, *R. speciosus* is a showy rock-plant, with flowers of the brightest yellow.

It will be time to look for others when the amateur has obtained and mastered the foregoing. But we may also add the names of a few that are well worth attention for their beauty, though not specially desirable for beginners. *R. bullatus*, *R. Lyalli*, and *R. cortusæfolius* are not hardy enough for commonplace treatment, but they are fine frame and cool house plants, needing a little protection against extreme cold and damp. *R. pyrenæus*, *R. gramineus*, *R. thora*, *R. uniflorus*, and *R. spicatus* may be added to the list.

The crowfoots agree pretty nearly in their cultural requirements. They love moisture, and the Alpine species are quite sensitive in this respect, for drought soon kills

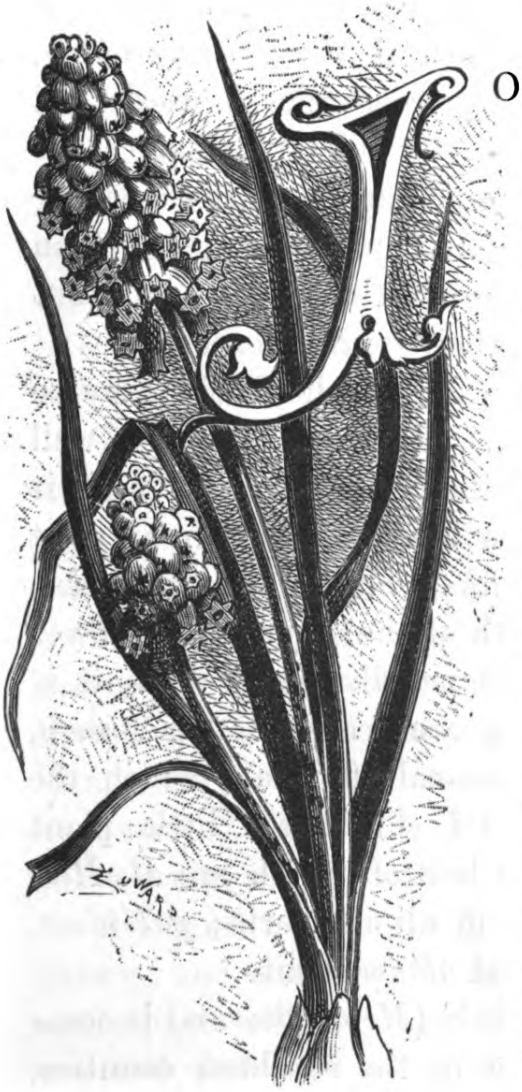
them. Full exposure suits them generally much better than a position in any degree shaded; but *R. speciosus* likes the shade, and Fair Maids of France will brave the fullest sun or endure some amount of shade, and is one of the best of border flowers for a London garden.

As regards soil, the more robust kinds thrive in loam or clay, but the smaller rock-plants require a loam with which there is incorporated a considerable portion of siliceous grit—say, to use familiar terms, a very sandy loam. As regards the more tender kinds, of which *R. Lyalli* may be regarded as the type, they may be grown on the open rockery in many places where the climate is kind, or where the circumstances provide sheltered nooks and warm, well-drained positions.

GRAPE HYACINTH.

GRAPE HYACINTH.

Muscari botryoides.



JOHN PARKINSON, herbalist and gardener to their dread Majesties James I. and Charles I.—by the latter, indeed, pronounced Botanicus Regius Primarius—hath, in his immortal presentment of "The Paradisus Terrestris" (1629), set forth for our edification five distinct kinds of grape-flower. They are severally the "darke blew," the "skie-coloured," the "branched," the "white," and the "blush." These are now grouped under two species, whereof we have one before us, and the other is the branched or starch-grape hyacinth (*Muscari racemosum*), a reputed British plant, but undoubtedly, when found wild, a mere escape from a garden. Another of the family, *M. comosum*, the feather hyacinth, was known to

Parkinson in five forms: the "white-haired iacinth," the "Turkie faire-haired," the "great purple," the "faire-haired branched," and the "faire curld-haire."

Grape hyacinths are liliaceous plants of very distinct character, and highly interesting. They have bulbous roots, which increase in number yearly, and offer a ready and simple means of augmenting the stock. This is especially the case with the beautiful *Muscari racemosum*, which will spread about the garden like a weed, and is not at all particular about the soil, provided it is not pasty. Their flowers are peculiar in their exceeding smallness, in form being more like pouches or eggs than bells. The leaves are like those of the vernal squill, but narrower and neater, owing to their stouter texture.

The many varieties to be found in the books may be referred to five species at most. The one before us is well known for its hardiness and exceeding beauty, although it is far from a showy plant. Its leaves are held in an erect position. Its little flowers are like a cluster of tiny berries, on which remain the white teeth of the calyx of the flower that is gone. But the resemblance disappears when it is seen that the imitation berries are really tubular flowers, and the white teeth are the so-called petals which the botanists call the perianth. Of this sweet little plant there are several varieties, the best of which are *M. Heldreicki*, which is of larger size in all its parts; *pallidum*, which has sky-blue flowers; and *album*, white.

The branched grape hyacinth (*M. racemosum*) is occasionally met with as a wilding in the southern counties, but is usually regarded as an escape from gardens, this and other species being natives only of Southern Europe and Asia Minor. This has long, prostrate leaves, from amidst

which rise dense clusters of egg-shaped flowers of a dark purple or cobalt-blue colour, with distinct white limb or perianth. The varieties are many, but it is sufficient to name *M. commutatum* and *M. neglectum.*

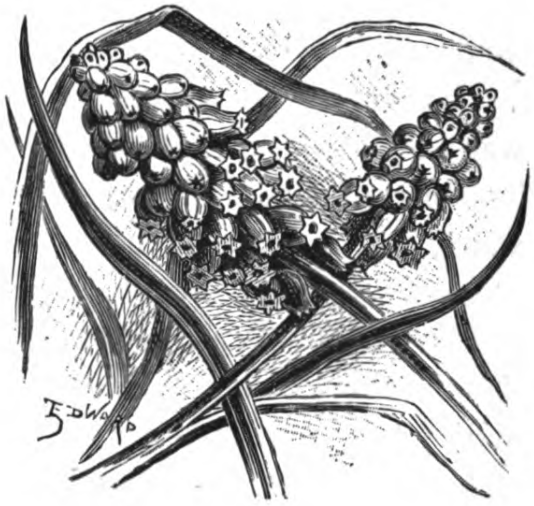
The feather hyacinth (*M. comosum monstrosum*) may perplex the student of plant form who is not yet familiar with the simple means adopted by nature for making sister plants very unlike one another. In this the divisions of the flower are cut into wavy filaments, and the appearance of a feather is the result.

The Armenian grape hyacinth (*M. Armeniacum*) is a rare and most beautiful species, or perhaps a variety of *M. racemosum.* Its flowers appear later than the others in a dense spike; their colour is a rich dark blue. Closely allied to this is *M. szovitzianum,* also flowering late.

The musk hyacinth (*M. moschatum*) is as scarce as the feather hyacinth, and equally worthy of attention. It is not a showy plant, but its delicate musky fragrance commends it to our favourable attention. In its normal form the flowers are of an unattractive yellow or yellowish-green colour, and would often be unnoticed except for their fragrance. But we are not restricted to this ordinary form when in want of musk hyacinths, because the variety known as *M. luteum* is of a beautiful sulphur-yellow colour and a waxy texture, and is richly scented.

All these pleasing subjects are of an accommodating nature, and need no special cultivation. A rich, deep, sandy loam will suit them better than any other soil; but any soil that will grow a daisy or a daffodil will serve the purpose. But they want something, or how shall we account for the scarcity of plants that naturally multiply and take care of themselves for the replenishing of the

earth? What they really want is *protection*. These and many more sweet things are systematically destroyed by the spade, for they die down and leave no mark that the untaught eye can see. Then comes the spade, the ground is dug, their bulbs are cast forth as rubbish, and they are seen no more. This kind of destruction is always in progress, and comes into full operation when a new occupant enters an old garden, wherein for years, perhaps, collections of choice things have been assiduously accumulated. Beware of the spade in the garden of hardy plants. Nine times in ten it has no business there. For every hardy plant a suitable station should be prepared, unless the natural soil is well adapted for it; but that being done, mere digging is akin to a crime, for it is likely to make mincemeat of peony roots and the bulbs of lilies and daffodils, and, generally speaking, obliterates all the beauties that are just sleeping to prepare themselves for the jubilations of the spring.



DOUBLE RED CAMPION.

DOUBLE RED CAMPION.

Lychnis dioica, fl. pl.

CAMPIONS are common flowers, but their names are reminders of their once noble uses. The campion is the champion's flower; it was ready to hand on the skirts of the wood and the hedgerow when the field games were in progress, and furnished flowers for the garland of the victor in colours white and red. Any one who will indulge in a dream of bygone customs in such a romantic spot as the great amphitheatre of Mayborough, or even the adjoining Arthur's Round Table near Lowther Castle, will soon perceive how the handiest flowers were necessarily promoted to honour, and it will be found, on searching the coppice and hedgerows near by, that campions, or champion-garland flowers, abound there.

The young botanist has to pass through a trial in the study of the genus Lychnis, for in collecting hedgerow specimens he will be troubled with the distinctions between *L. vespertina*, *L. diurna*, and *L. dioica*. He will be more perplexed, perhaps, by the diversity of forms and colours in flowers that appear to be specifically the same, some having narrow, others broad petals—some being white, others rich carmine or purplish-red. There are three species in the best books, and any number in the worst. The wild flower hunter will easily obtain twenty kinds, fairly distinct, and will be puzzled about all except the pure white, and they will be classed as *L. vespertina*, and then what will be done with the rest? Remembrance of our own troubles takes us back to happy days when such troubles were delights; and it takes us back, too, to the discovery which we accomplished by innumerable comparisons and reflections.

These three so-called species are but the more distinctive forms of *one and the same species*. The ruling characters of the plant are the same all through; the variations are such as we are accustomed to in the observation of vegetable life, and really ought not to have perplexed us at all. The wary Bentham makes two species of them; but Dr. Deakin ("Florigraphia Britannica") puts them under one head, as varieties of *L. dioica*, the white campion. The interest attaching to this plant will be best understood from Deakin's note, as follows:—

"This is a remarkable species of Lychnis, from the circumstance of its flowers being diœcious and of different colours. In the illustrations of these states we have represented the white-flowered variety with pistils only, producing capsules and seed, and in the red a specimen with stamens only, and consequently barren; sometimes,

however, flowers are found with both stamens and pistils. The white and red flowered plants have been by some authors made distinct species, the red-flowering plants having the petals with deeper, narrower, and more spreading lobes, and the capsules rounder, with the valves recurved, while the white-flowered one has broader, less spreading lobes to the petals, ovate connate capsules, and the valves of erect teeth. We do not, however, find this character sufficiently constant: the petals both of the red and white variety vary considerably in width, the shape of the capsule is not constantly the same, and the teeth of the white variety are as frequently reflexed as erect. Both these varieties are occasionally cultivated in gardens, and frequently become double and very ornamental, but are liable, unless care is taken of them, to return to the single state."

The double variety which forms the subject of the plate is one of the most splendid garden flowers of its class —humble indeed, but in its day of glory unique in its display of colour, which differs from all the single varieties, perhaps owing to the accumulation of power resulting from multiplicity of petals. We have occasionally endeavoured to match it for colour in a great garden where myriads of lovely plants were blooming. We have compared it with calandrinias, with many dianthuses, and more particularly with that wonderful bit of colour, *Dianthus hispanicus;* but it remained unmatched at the end of the story. An advantage of the double variety is its dwarf growth: very different indeed to the single in all its states, when happy on a moist bank, a little shaded by trees. The ragged robin (*L. flos-cuculi*) gives us a double variety which is quite worth having, but is not equal in splendour to the plant before us.

These double varieties require a little care, or for some reason or other they pass away and leave no sign. The single plant will grow almost anywhere. We have seen whole meadows of it in stony ground near Broadwater, in Sussex, and have had the most glorious banks of it in rich moist loam in our own wild garden. The ragged robin we have seen making a rosy-coloured hay grass on the skirts of Axe Edge, where it had nothing but stones to live upon, with a plentiful rainfall, and took the place of grass, because in those particular hay-fields very few grasses would grow. But these doubtful varieties must be treated as Alpine plants; they should have a deep sandy loam for their root-holding, and in dry weather should be treated with water, for every lychnis loves moisture, and may soon be killed by drought.

SNOWY CROWFOOT.

SNOWY CROWFOOT.

Ranunculus amplexicaulis.

IN the description of the double buttercup this plant is mentioned as one of the gems of the crowfoot family. It has the peculiar merit of "taking by storm"—but very quiet storm—the admiration of the critic who may have dared to entertain doubts of the merits of Alpine plants. This beauty is a true mountaineer, and has all the characteristics of the genuine Alpines—neat growth, dwarf habit, elegant leafage, large and lovely flowers. The typical ranunculus has lobed or divided leaves, but this plant has entire leaves that clasp the stem, and have none of the full green colour of a typical ranunculus, but are of a pale sea-green colour. Those that spring from the root form a suitable setting for the lovely white flowers that rise

above them, of which there are sometimes as many as five on a stem; but they occur in twos and threes more commonly. In form and colour the plants are as satisfying as any known Alpine; they are perfect in smoothness, and as pure as the snow itself that ofttimes forms the cradle of the plant on the higher levels of the Pyrenees and Carpathians.

The delicate beauty of this plant will suggest that it needs much care and skill in its cultivation; but the truth is it needs none, being of a most accommodating habit, and apparently quite "at home" on a fairly good rockery in any London garden.

There are many first-class Alpine plants of similar adaptability to the varying conditions of life in gardens. It is, indeed, no difficult matter for the experienced cultivator to select, say, two to three hundred species, comprising plants of the highest order of beauty in their several classes, all of them calculated to thrive under the most ordinary conditions of cultivation. It may be of some service to the reader if we sketch out the lines on which such a selection should be formed, and we will arrange the subjects in alphabetical order.

Alyssum montanum and *saxatile*, with, perhaps, *alpestre*. The first is well known as a brilliant heap of gold in spring. These require a sandy soil and an open position to be quite safe against winter damp.

Anemone apennina, blanda, fulgens, hepatica, angulosa, nemorosa, ranunculoides, sylvestris, a lovely group; to which may be added for the borders *A. japonica*, and the section of the florists under *A. coronaria*. The strong growers require rich, deep, moist loam; the more delicate kinds a light loam with a large proportion of grit.

Anthyllis montana and *vulneraria*, suitable for dry soils.

Aquilegia alpina, cærulea, Canadensis, and *Skinneri*. These require to be regularly renewed from seed, as they are biennials, though classed as perennials. For the most part they sow their seeds in plenty, and provide for a succession. Any good soil will suit them.

Aubrietia purpurea, grandiflora, and *Mooreana* are invaluable for beds, borders, and rocks.

Aster alpinus, versicolor, and *altaicus* are suitable for any dry spot in a sunny situation.

Calandrinia umbellata, a tiny beauty, to be raised from seeds every year.

Campanula fragilis, garganica, cæspitosa, rotundifolia, turbinata, carpatica, and *pulla*, a fine lot, needing only sunshine and sandy soil.

Corydalis lutea and *nobilis*, very gay for rocks and walls.

Dianthus deltoides, neglectus, cæsius, and *petræus*. These require careful cultivation; and having that, the air of the city of London would be good enough for them.

Dielytra eximia and *formosa* will thrive in any soil, and are brilliant town garden plants.

Dryas octopetala is the sweet little mountain avens. This and *D. Drummondi* require a moist peat soil.

Erinus alpinus, a mossy miniature that requires the comfort of old stone or brick rather than of earth for its roots. Try it on the top of an old wall, as well as in a very sandy dry border.

Erysimum ochroleucum and *pumilum* will thrive on borders, but are more at home on rocky shelves and dry nooks in ruins.

Gentiana acaulis, Andrewsi, and *asclepiadea.* These are the best gentians for a town rockery. A sandy loam with plenty of stones in it will suit them perfectly.

Iberis sempervirens, corifolia, and *Gibraltarica* are the most useful of this genus, and all they require is a good loamy soil and the fullest daylight.

Iberidella rotundifolia is a beautiful tap-rooted plant that must be raised from seeds on a good, deep, sandy soil.

Helianthemum annuum, rosmarinifolium, and *tuberaria* are good town plants that love the sun, but do not object to a little shade, and any soil will suit them.

Lithospermum prostratum and *petræum* are two gems for the sunny part of the rockery where they can spread over stones and make carpets of blue flowers.

Myosotis azorica and *dissitiflora* are the best of the forget-me-nots for very choice purposes.

The remainder will follow under "Siebold's Primrose."

SIEBOLD'S PRIMROSE.

SIEBOLD'S PRIMROSE.

Primula Sieboldi.

SIEBOLD'S PRIMROSE is nearly related to the cortusa-like primrose, the best form of which is that named *amœna*. The plant before us differs from that in many particulars, the creeping root being one of some importance, while the differences in leaf and flower, and the characters of the seed-vessel and the seeds, go far to justify the separation of *P. Sieboldi* as a species. It is a plant of great value for its showy character, its hardiness, early flowering, and pliant constitution, for it needs no special care in cultivation, but in common with primulas generally requires a deep, moist, rich soil, a little shelter, and some amount of shade from the full power of the summer sun.

The recommendation of a moist soil for these primulas

is occasionally misunderstood by amateurs, who have not fully learned the import of the term "winter damp." While growing freely they certainly must have moisture, or they will die. The same remark applies to the common English primrose, and thousands perish every year in gardens through dryness at the root in the summer season. But, on the other hand, a damp sour soil is equally fatal to them in winter, and, to take a further view of the matter, the defective drainage of rockeries and borders is the principal cause of all the losses that occur in gardens where choice plants are denied their right of choice treatment. To grow *Primula Sieboldi* and its near relation *P. cortusoides* well, a border or bank should be prepared of good loam, leaf-mould, and old hotbed manure, with a liberal proportion of sand; and in this they will prosper, provided they are not injuriously damp in winter. In a place badly drained, a raised bank or slope will often answer perfectly for plants that are a little particular, but the slope should be broad and easy, not narrow and abrupt. An easy slope will collect its share of summer rain, but a sharp slope will collect none, and in avoiding winter damp we must not rush to the other extreme of summer dryness.

The named varieties of this primula are of great value for frame culture and for the unheated Alpine house. The best of them give us beautiful shades of lavender and blue, colours but rarely represented in the primula family.

We continue here our list of select rockery plants, many of which are admirably adapted for the border :—

Phlox reptans and *subulata*, with their several varieties, will thrive in any good soil; they bear partial shade, and make a wondrous show of floral beauty.

Phyteuma humile, Sieberi, and *orbiculare* are of the

useful class of rockery plants, their blue flower-heads being at once curious and beautiful.

Polygonum Brunoni and *vaccinifolium* make a nice pair to form spreading masses in sheltered bays, common soil being sufficient for them.

Ranunculus amplexicaulis, montanus, glacialis, rutæfolius, alpestris, parnassifolius, and *Lyalli* form a lovely group for the moist parts of a good rockery. To plant them and forget them will not do; moisture in summer they must have, and care must be taken to keep the ground free from weeds.

Saponaria cæspitosa and *ocymoides* are capable of taking care of themselves almost anywhere, and they are of the thoroughly useful class of rock plants.

Saxifraga Andrewsi, longifolia, pyramidalis, oppositifolia, ceratophylla, hypnoides, muscoides, cristata, cordifolia, crassifolia, geum, juniperina, umbrosa, and a dozen more can be brought into service where the rockery is extensive and well managed. These are not particular about soil, but the soft leafy kinds require much moisture, and the hard crusty kinds require to be in dry positions, amidst stones or on the faces of rocks, but with a good depth of earth for their roots to ramble in. The saxifrages should have the best attention of every lover of choice hardy plants.

Scabiosa Webbiana, graminifolia, and *atropurpurea nana* will grow in common soil and almost any situation.

Sedum rupestre, Sieboldi, spectabile, pulchellum, glaucum, spurium, maximum, aizoon, and *telephium* are all lovers of sunshine and a dry calcareous soil, with a grand habit of taking care of themselves. *S. lydium* is a gem for a moist half-shady nook on the rockery.

Sempervivum calcareum, hirtum, globiferum, montanum, soboliferum, tectorum, and *arachnoideum* require light and lime, but they must have something to live on, and therefore it is possible to kill them by starvation—a thing often accomplished by beginners in plant-growing.

Silene alpestris, Schafta, and *Virginica* are three beauties, needing a deep sandy or stony soil, and to be safe from winter damp.

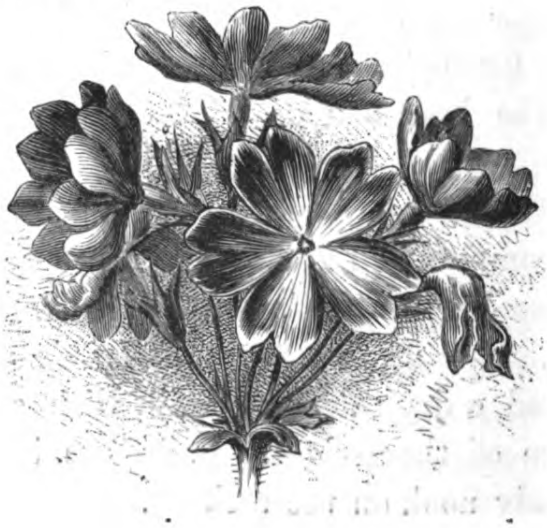
Spiræa bullata, filipendula, palmata, and *lobata* form a fine group; they need a deep moist loam.

Thalictrum anemonoides and *minus* are two quiet plants that will become favourites when well known; any soil will suit them.

Thymus serpyllum, citriodorus aureus, and *lanuginosus* are lovely things for a wall or ruin, and will flourish in the very heart of London if properly provided for.

Tunica saxifraga is a little rosy beauty for a wall or a stony sunny corner.

Veronica prostrata, rupestris, and *spicata* are lovely enough for any honest eye, and do well on a town rockery, with no special care.



ALPINE WALLFLOWER.

ALPINE WALLFLOWER.

Cheiranthus Alpinus.

IN the First Series the common wallflower is described under its generally accepted name of *Cheiranthus cheiri*. The plant before us bears a name which indicates its close relationship to the wallflower proper, and it is also known as *Erysimum ochroleucum*, which connects it with the common treacle mustard and other four-parted yellow flowering plants of like character. The true wallflower is of universal use in gardens, its sturdy growth, brilliant colours, and fresh spicy fragrance insuring for it general acceptance as one of the most delightful products of spring. The so-called Alpine wallflowers are not of universal use; but, on the other hand, they have some special claims on our regard as valuable adornments of the rockery and the choice border.

The Alpine wallflower (*E. ochroleucum*) forms a neat leafy bush, nine to twelve inches high, adorned in spring with a fine head of sulphur or pale lemon-coloured flowers. Like the garden wallflower, it is well adapted for planting on walls and ruins, but unlike the more fragrant plant, it is not adapted for the common border, by reason of its susceptibility to winter damp. It is as hardy as any plant of its class, and therefore frost will but rarely harm it, provided it is on a dry soil, and has not become over-luxuriant through good living. It is a point of great importance for the amateur grower of Alpines to bear in mind that the promotion of a free succulent growth is altogether undesirable in the case of all such plants; many of them require an abundance of moisture in their growing season, but a rich soil and a position removed from the free atmosphere and the full play of the daylight are, generally speaking, directly injurious, both as rendering the plants less hardy than is their nature, and also less disposed to flower freely. We often have to recommend a deep nourishing loam or peat for Alpine plants, but it may be observed that we never recommend the use of stimulating manures or soils that are naturally damp and heavy. The mountain flora comprises plants that vary immensely in affinities and requirements; some are at home on the dry, starving rocky bluff, where there is scarcely a particle of such stuff as we call "mould;" others haunt the crowded bog, where the plants form a dense wet mat, and subsist on the black earth that results from the ever-accumulating decay of those that have lived their season or have been stifled by the strong usurpers. But a large proportion of the most beautiful Alpine plants have their roots in deep beds of decayed stone, containing

always some amount of moisture, but often in the summer being saturated with water, owing to the melting of ice and snow on the peaks above them. Those beauties that are so much prized in our gardens will generally thrive on the rockery where the soil consists of sandy loam, with some proportion of calcareous matter, and the drainage is sufficiently perfect to insure that there shall be no lodgment of water in the winter season. As for the *Erysimums*, a poor soil and full exposure are the chief requisites.

The Lilliputian wallflower (*E. pumilum*) is a pretty little Alpine with greyish leaves, the whole plant rarely exceeding one inch in height, but bearing yellow flowers of the same general character as the plant before us. This requires the best of care in its cultivation, and should be seated amidst stones, both to insure continuous moisture for its roots and to protect it from harm.

The Rhœtian wallflower (*E. rhœticum*) is a beautiful little thing, worth a place on the choicest rockery. The rock wallflower (*E. rupestre*) and the fine-leaved wallflower (*Cheiranthus tenuifolius*) may be added to the budget as a couple of very choice subjects. The last named has long narrow leaves and a short flower-stem, bearing rather large pale yellow flowers.

The lance-leaved treacle mustard (*E. lanceolatum*) claims notice as a somewhat important plant, the names it bears in the books being at least twelve in number. It comes near to our Alpine wallflower, but differs in growth and leafage. Whatever its exact place, it may be made note of as a good rockery plant; it has two forms, the *major* and the *minor*, the last named being the best. The flowers are of a lemon-yellow colour, very agreeably scented.

Returning to the garden border, where the more robust and fragrant wallflowers show their cheerful green all the winter, and their golden, fiery, and sanguinary flowers in spring, mention should be made of two species of *Erysimum* that are renowned for the splendour of their flowers.

One of these is the Persian treacle mustard (*E. Perofskianum*), a splendid annual, received at the Edinburgh Botanic Garden in 1838 from Dr. Fisher as a native of Cabul, but in *B. M.*, 3,757, it is described, on the authority of Lady Mary Cathcart, as a native of Persia, where it is as great a favourite as the wallflower is with us. This beauty is usually grown from seeds sown in autumn, but the seeds may be sown in March and April.

The other plant is Marshall's wallflower (*Erysimum Marshallianum*), also known as *Cheiranthus Marshalli*. This is always grown from cuttings, as it never or but rarely produces seed. It forms a neat little bush, which in early summer produces a profusion of showy flowers of a buff-tinted apricot. In the early days of the bedding system it was much employed in geometrical colouring.

DOG'S-TOOTH VIOLET.

DOG'S-TOOTH VIOLET.

Erythronium dens-canis.

OBSERVERS of plants who endeavour to understand their names have usually a tough task before them. Many names, indeed, carry their meanings in their faces, but many have no meaning at all; and, again, many are founded on such subtle distinctions or fanciful notions that it is not in the plant but in the mind of the nomenclator that we must seek for the coveted explanation. But whatever the vices of botanical terminology — and they are terribly numerous— there are many reasons why names intended to be descriptive should be founded on obvious characters that are displayed above ground. Here is a dog's-tooth violet, and the inquiring amateur may be led to search leaves and flowers for some resemblance to the dog's-tooth moulding that so often occurs in architecture,

and may conclude at last that the spots on the leaves shadow forth the resemblance. But the dog's tooth is underground, and we must dig up the plant to make a proper study of its name—a proceeding akin to the cutting open of the bellows to discover the reservoir that contains the wind. The bulbs of the plant are white, and in form not much unlike dogs' teeth. They justify the *dens canis*, and the colour of the flowers—a warm rosy-purple or lilac—in like manner justifies the familiar name of "violet," although in truth we have but rarely seen a violet of such a colour. But a rose by any other name would smell as sweet, and by any other name a dog's-tooth violet would look as pretty, more especially if judiciously placed upon the garden rockery, to display its tesselated leafage and cyclamen-like flowers.

The dog's-tooth violet is the only European species of its family; the others are natives of North America, and are quite hardy and very acceptable in the English garden. They are not adapted for what may be termed "purposes," for in truth they are too choice to be appreciated by the "casual eye," but they are gems of the first water for the eclectic amateur. They belong to the great family of lilies, with which they agree in their six-parted flowers and the arrangement of stamens and pistils, although in less important particulars they are far removed from the genus Lilium.

All the erythroniums will thrive in a deep sandy soil or in peat, and a moist soil suits them better than a dry one. They appear to flower equally well in sun or shade, but shelter from cold winds is desirable, and this the rockery should sufficiently afford them. Border plants they are not, although perfectly able to hold their own in the border so

long as they are unmolested. But where shall we find an ordinary garden border in which these plants would be safe? Moreover, they are not showy enough for the border, except it be in the garden where such delicate little things would be fully appreciated and never forgotten; in the few such there may be a home for erythroniums.

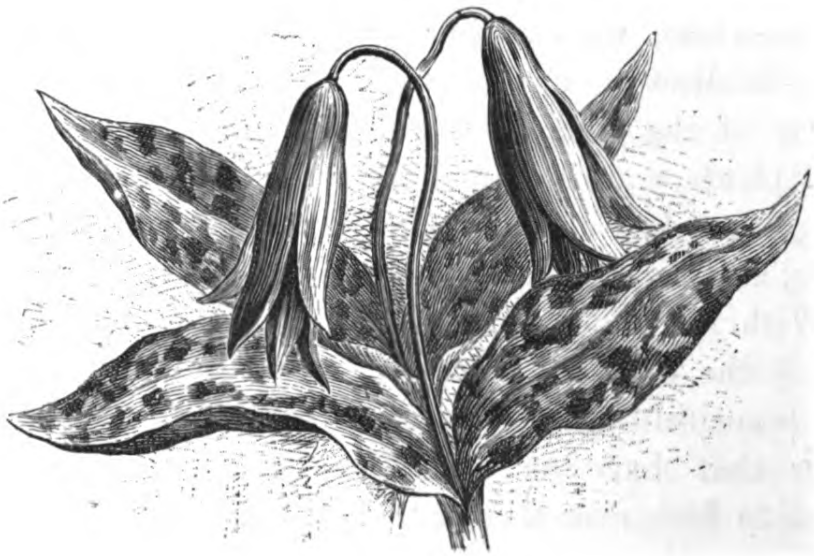
The plant before us has oval leaves, blotched with reddish-brown; the flowers are borne singly on stiff stems: they are usually light purple or lilac-coloured, but there are varieties with white, rose, and flesh-coloured flowers; and a variety called *majus* has longer leaves than the best known form of the plant. The propagation is best accomplished by dividing the clumps every three or four years, and re-planting rather deeply. The best time for this operation is when the leaves are dying down, as then the bulbs are most completely at rest.

The finest of the erythroniums is *E. grandiflorum*, a suitable plant for a moist peat bed. Nearly allied to it is *E. giganteum*, a native of Vancouver's Island—the flowers white, with a ring of bright red, the plant one of the hardiest in our gardens. These two fine species are worthy of the special attention of the lover of first-class hardy plants, and they are truly hardy: no frost hurts them, and given a bed of moist peat, with shelter from drying winds, all they further ask is to be let alone.

With the yellow adder's tongue (*Erythronium Americanum*) the case is different. It is a woodland plant, with beautiful mottled leaves, and flowers of a pale yellow colour that have an orchid-sort of expression as they appear to look over their own leaves, and subtly invite one to observe the floral spots that in some degree dissociate them from their family. This pretty plant requires to be

grown on the rockery, and to be there "pot-bound," if such an expression may be used. A peat bed in which it can grow freely is not the best place for it; but a rather starving "pocket," with a good depth of poor sandy soil, will satisfy its wants and persuade it to flower, whereas a position favourable to growth will result in a production of many leaves and few flowers.

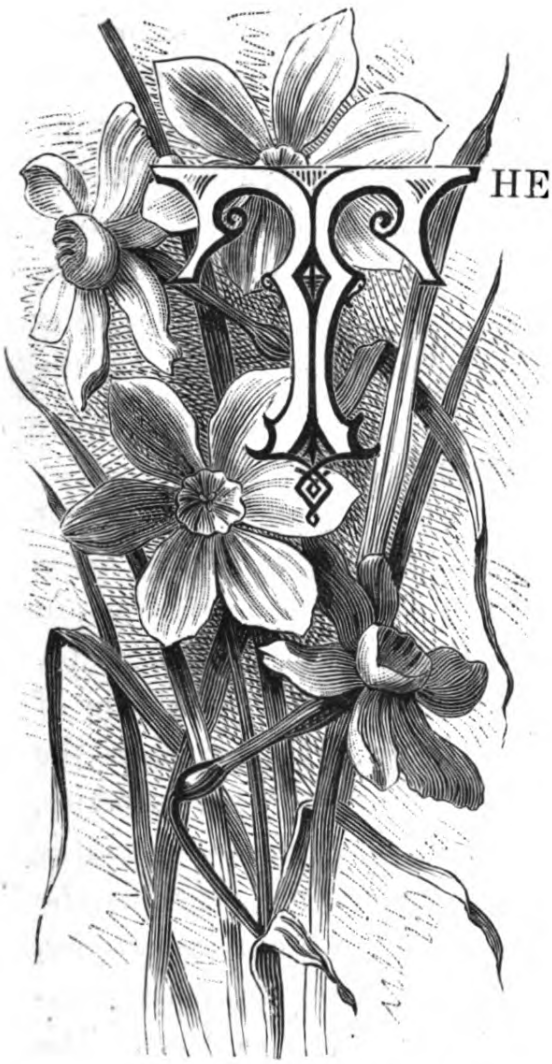
The erythroniums are well adapted for planting out on grass slopes, in the same way that snowdrops, crocuses, hardy cyclamens, winter aconites, and colchicums are grown in gardens where a tender hand bears sway—a hand, namely, that recognises that every plant which produces leaves and flowers must be allowed to make a free leaf-growth to be enabled to produce its flowers. Erythroniums show their beauties advantageously where they dot the green herbage, and the effect is very different to the appearance of the flowers above dark mould.



TINY DAFFODIL.

TINY OR RUSH DAFFODIL.

Narcissus juncifolius.



THE family of Rush daffodils is a large one, but the plant before us is *the* rush daffodil, and very different from the basket-flowered daffodil, the gay corbularia which sometimes bears the name. There are not many cultivators of the rush or tiny daffodil, for its smallness is an offence against the popular expectation. Its beauty proclaims itself to those who have eyes to see, for it is one of the loveliest of the family. For a quick lesson in the characters of narcissi, it may be compared with corbularia, all the forms of which are classed by Parkinson as *Pseudo-narcissus juncifolius*, because of their narrow, rush-like leaves. The comparison will show striking differences in the leaves, and much more striking differences in the flowers, and enable any one not learned

in the subject to apprehend the primary principle of the scientific classification. In corbularia (also known as bulbocodium) we note that the corona, or trumpet, is the principal feature of the flower, and the outer or perianth segments of quite secondary importance. The resemblance of the corona, cup, or trumpet to a deep basket justifies the name corbularia, and at once connects it with the corbel in architecture, which is in the nature of a basket supporting a window or ornament. In the flower before us the central corona, or trumpet, is very much contracted—indeed it cannot be called a trumpet, but may be likened to a shallow cup. On the other hand, the perianth segments, or, say, the petals of the flower, are conspicuous elements, being broad and spread out, forming a leafy saucer to sustain the cup.

The proportions of the cup to the divisions of the flower (which we have above spoken of as petals) form the basis of the modern classification. The narcissi are arranged, in accordance with the length of the cup, in three groups. The first group is *magnicoronatæ*, in which the middle of the flower is as long as the divisions. It comprises the pretty corbularia and the whole of the great trumpet series. The second group is *mediocoronatæ*, in which the crown is half as long, or perhaps three-quarters as long, as the divisions. In this group we find the noble chalice narciss, the grass-leaved odorus, and the little beauty with rush-like leaves that makes occasion for this discourse. The third group is *parvicoronatæ*, in which the crown is less than half as long as the divisions. Here we find the true daffodil of the poets, *N. poeticus*, the two-flowered *N. biflorus*, and the stately, many-flowered *N. tazetta*, valued above all the rest for growing in pots.

Narcissus juncifolius is a native of Spain and the south of France. It bears a general resemblance to the jonquil, from which, however, it differs in the crown being half as long as the divisions.

To cultivate this pretty thing is easy enough, and perhaps the chief point is to take care that its smallness does not lead to its destruction. Wherever it is, a label should mark it; then when the leaves die down there will be less risk of the disturbance of its roots. As a rockery plant it is perfect, and a sheltered nook, with a soil of a dry sandy nature, will suit it well. But it is best treated as a pot-plant, and when the flowers are past and the leaves are dying down, the pots should be put upon a dry shelf in the greenhouse, and there remain until the bulbs are once more inclined to grow, then they should be carefully picked over and re-potted in fresh soil. It is in some cases advisable to keep such little things for two seasons in the same pots undisturbed, giving them water in their proper growing season, and keeping them dry in their resting season.

The basket daffodil (*Corbularia*) in its common form is a lovely flower, of a rich lemon-yellow colour. This species offers several varieties, the most interesting of which is the one called *monophylla*, which usually has but one leaf accompanying each of its white flowers. The finest of the yellow forms is that known as *conspicua*.

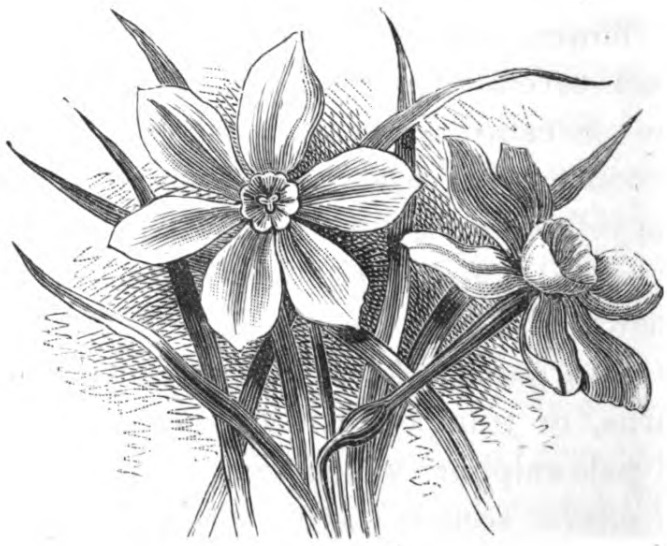
The trumpet daffodil (*Narcissus pseudo-narcissus*) is the best known of all of the bright family, and of great importance as a garden flower. The varieties have bold yellow crowns, or trumpets, but in *moschatus* we have a flower of a pale sulphur, which changes to a pure white, and in the *bicolor* section there is a white perianth and a yellow crown. The following varieties of the trumpet

section are particularly fine—viz., *Horsfieldi*, *Emperor*, *Empress*, *Obvallaris*, *Maximus*, *Shirley Hibberd*, *Tottenham Yellow*, and *Dean Herbert*. The best of the double varieties are *Grandiplenus* and *Telamonius plenus*.

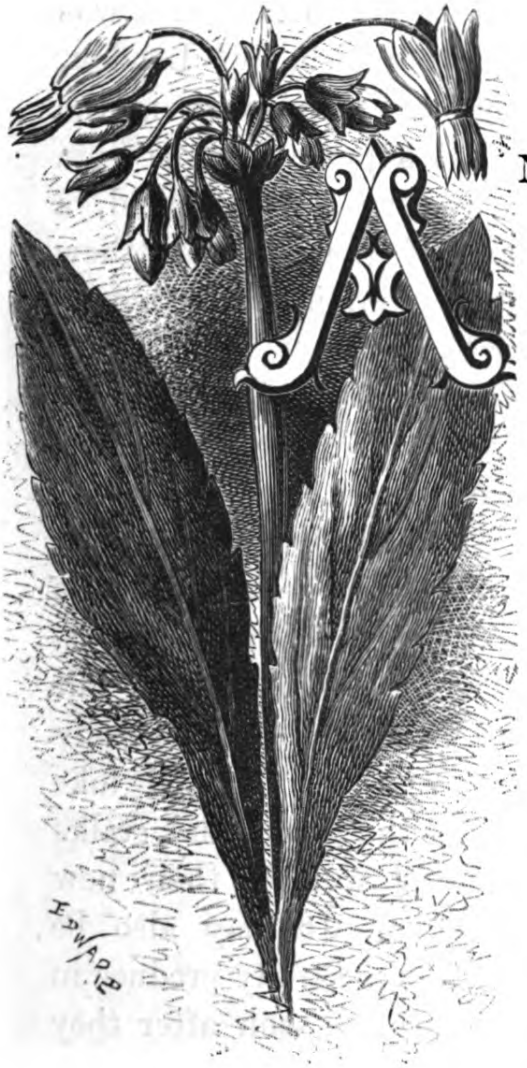
The chalice daffodil, or *incomparabilis*, is beautiful in all its forms, but the most conspicuous varieties are *Orange Phœnix*, *Hume's Giant*, *Butter and Eggs*, *Sir Watkin*, and *Mary Anderson*.

The true daffodil (*Narcissus poeticus*) flowers later than any of the foregoing, and is renowned for the beauty of its white perianth and short purple cup. The most useful of this section are *Biflorens*, *Angustifolius*, *Ornatus*, and the *Double White*, or *Gardenioides*.

The many-flowered daffodil (*tazetta*) is greatly valued for pot culture and for forcing, though well adapted for the border, where the climate is kind and the position sheltered. The most distinct of these are *Bathurst*, *Double Roman*, *Florence Nightingale*, *Grand Monarque*, *Newton*, *Paper White*, *Soleil d'Or*, and *Sulphurine*.



AMERICAN COWSLIP.



AMERICAN COWSLIP.

Dodecatheon Meadia.

AN American cowslip ought to be like a cowslip, but this flower is more like that of a potato. The comparison cannot degrade the flower, because the flowers of many sorts of potatoes are beautiful in the most proper sense of the term. A very choice Alpine known as *Ramondia Pyrenaica* comes nearer to the likeness of a potato than the *Dodecatheon* before us, but it is far removed botanically, and the resemblance is but superficial. But an American cowslip ought also to be like a lettuce, for as much is implied in the generic name; but the resemblance of the leaves to those of a lettuce is less apparent than that of the flowers to those of a potato. It is a primulaceous plant, and therefore comes near to the cowslip in affinities, as it does also in cultural requirements—at

least in some degree. It is more of a woodland plant than the cowslip, loving shade and a peaty or leafy soil; but it is not particular, and if once comfortably located will do better left alone than with any possible attentions.

The plant is a native of Virginia and other parts of North America, whence, according to Philip Miller, it was sent by Mr. Banister to Dr. Compton, Bishop of London, in whose garden at Fulham Miller saw it growing in the year 1709. Linnæus adopted for it a generic name from Pliny, and a specific name in honour of Dr. Mead, a physician of great eminence, son of the Rev. Matthew Mead, a Presbyterian divine, who was minister of Stepney during the government of Oliver Cromwell.

Here is the story as told lang syne. According to Philip Miller, to whom we are indebted for the first proper account of its cultivation, the American cowslip flowers at the beginning of May, and the seeds ripen in July, soon after which the stalks and leaves decay, so that the roots remain inactive till the following spring. It is propagated by offsets, which the roots put out freely when they are in a loose moist soil and a shady situation; the best time to remove the roots and take away the offsets is in August, after the leaves and stalks are decayed, that they may be fixed well in their new situation before the frost comes on. It may also be propagated by seeds, which the plants generally produce in plenty; these should be sown in autumn, soon after they are ripe, either in a shady, moist border, or in pots, which should be placed in the shade. In the spring the plants will come up, and must then be kept clean from weeds; and if the season proves dry, they must be frequently refreshed with water. Nor should they be exposed to the

sun; for while the plants are young they are very impatient of heat, so that I have known great numbers of them which were growing in the full sun destroyed in two or three days. These young plants should not be transplanted till the leaves are decayed; then they may be carefully taken up and planted in a shady border, where the soil is loose and moist, at a distance of about eight inches from each other, which will be room enough for them to grow one year, and by that time they will be strong enough to produce flowers.

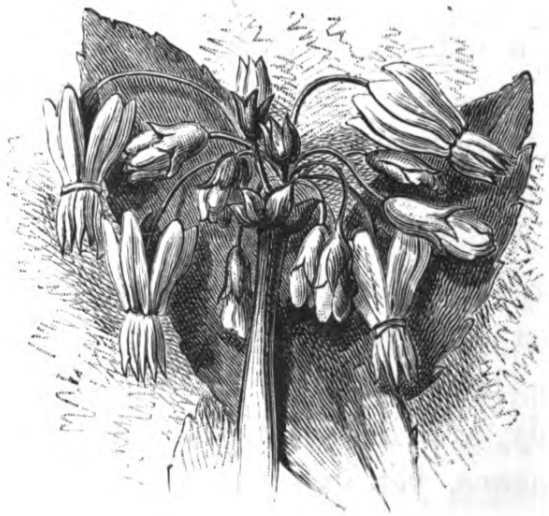
But it must not be supposed that *D. Meadia* is the only plant of its genus deserving of our attention. It is perhaps true that none of the species can surpass it in beauty, but the entire-leaved cowslip (*D. integrifolia*) makes a change. The leaves are smaller and the flowers are on shorter stems than those of *D. Meadia*, and there is a difference of colour; for purple we have here crimson. This pretty plant may be easily grown on the rockery, in a soil of sandy peat, and it makes a good pot-plant.

We have a much stronger plant in Jeffrey's cowslip (*D. Jeffreyanum*), also known as *D. lancifolium*. This rises two feet high, with strong stems and large thick leaves, the flowers a shade darker in colour than those of *D. Meadia*. When planted out on the rockery it should have a sheltered nook with a deep bed of peaty or loamy soil of the best quality.

There are hundreds of plants of this class that are perfectly hardy, and require no elaborate preparations for their maintenance, yet in some gardens refuse to thrive, while in others they may be said to grow "like weeds." Very much, of course, depends upon that "magic touch" which one can give to the work and another cannot.

In cases where the elements are at war with choice hardy plants, there is a way out of the difficulty by growing them in pots, in frames, and in unheated plant-houses, as we then obtain for them protection against keen winds and the smoke and dust of the town.

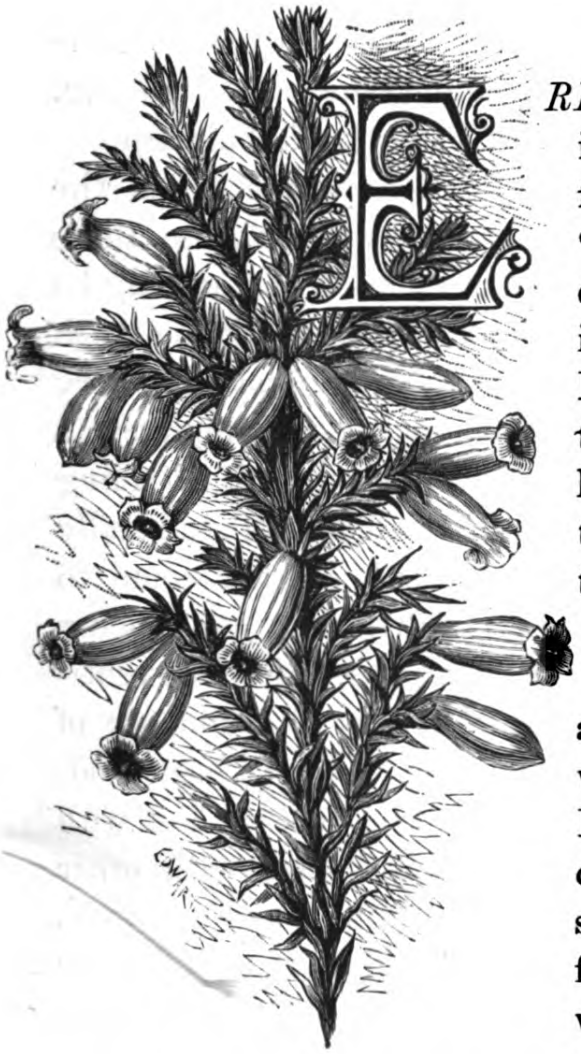
While the winds whistle and the rains descend, probably the most desirable of all possible toys for a lover of hardy plants is a neat span-roofed house with central walk through, and raised beds of earth on each side, supported by brick walls and faced with clean-washed sea-shells or small pebbles, on which the pot-plants are placed to enjoy the fullest light near the glass and display their beauties to visitors. The cost of such a house is but trifling as compared with its serviceableness and comfort, and it should be considered a proper supplement or adjunct to the rockery and Alpine garden.



YELLOW HEATH

YELLOW HEATH.

Erica Cavendishiana.



ERICA Cavendishiana derives its name from having been formerly known as the "Duke of Devonshire's golden heath." Its history is involved in some obscurity. It came into being anterior to the days of illustrated horticultural periodicals, and therefore obtained less attention than such a fine plant would have attracted at the present day on first appearing as a novelty. It was raised by the Messrs. Rollison and Sons, of the celebrated Tooting Nurseries, by fertilising the flowers of *Erica depressa* with the pollen of *E. Patersoni*. Both these have yellow flowers, and the Cavendish hybrid is a finer plant than either of them, and particularly well adapted for specimen cultivation. In the times that are spoken of as the "palmy days of Chiswick," the Cavendish

heath was eminently fashionable, and Mr. Fairbairn, of Clapham, used to exhibit enormous specimens in a wondrous state of health and beauty. But even in these degenerate days we occasionally see it in perfect trim as a specimen plant, among the most successful cultivators of recent years being Mr. Thomas Baines, formerly of Bowdon, and Messrs. Cole, of Withington. At the present time among the ablest men in handling the plant are Mr. Cypher, of Cheltenham, and Mr. Tudgey, of Waltham.

Between the growing of gigantic specimens, and the neat little plants that suit an amateur's greenhouse, there is considerable difference. A collection of heaths may be formed and kept at little expense, and to speak the truth about them, they are very easy to grow, and also very easy to kill; and the failures that occur usually represent a waste of delicate attentions. When housed with bedding plants and kept warm and close all the winter, and liberally and frequently watered, they die and do not come to life again. They belong to the more breezy and bracing climates of the Cape, and in cultivation require free ventilation, very moderate allowances of water, abundance of light, and to be guarded against all extremes of heat, cold, drought, and humidity. The men who succeed best with heaths group them in airy spacious houses with other plants of like character, such as hedaromas and epacrises, and other "hard-wooded plants." But a considerable proportion of the Cape heaths are so nearly hardy that, with ordinary care, a brick pit without any fire-heat will suffice for their safe wintering. The great point is to protect them from damp, towards effecting which perfect cleanliness and systematic ventilation will contribute in the most direct manner.

It is likely that many have failed with these plants through over-solicitude in respect of the best soil for them. They will certainly not live in lumpy clay or any calcareous soil. But they are not so particular as is commonly supposed. They like rough sandy peat, pebbles, broken flower-pots, and are not particular as to gravel if it is a little loamy or peaty, and not pasty or loaded with salts of iron.

Heaths are propagated by cuttings, which should consist of short lengths of the young wood removed when nearly but not quite ripe. These are planted in pots or pans, carefully drained and filled with a mixture of about one part of peat to four parts of clean silver sand, with a surfacing of half an inch of sand only. When planted and watered the pans are covered with bell-glasses and shut up rather close in a frame or in some rather dark corner of the greenhouse, and are disturbed as little as possible until the cuttings show by their new growth that they are rooted. But the bell-glasses must be taken off occasionally and wiped dry on the inside and replaced. This process insures to the cuttings a little air periodically, and prevents death by damping. A beginner in propagating must not expect complete success, for it is a business demanding much skill, and the best directions are of only general value; the school of practice alone can teach effectually.

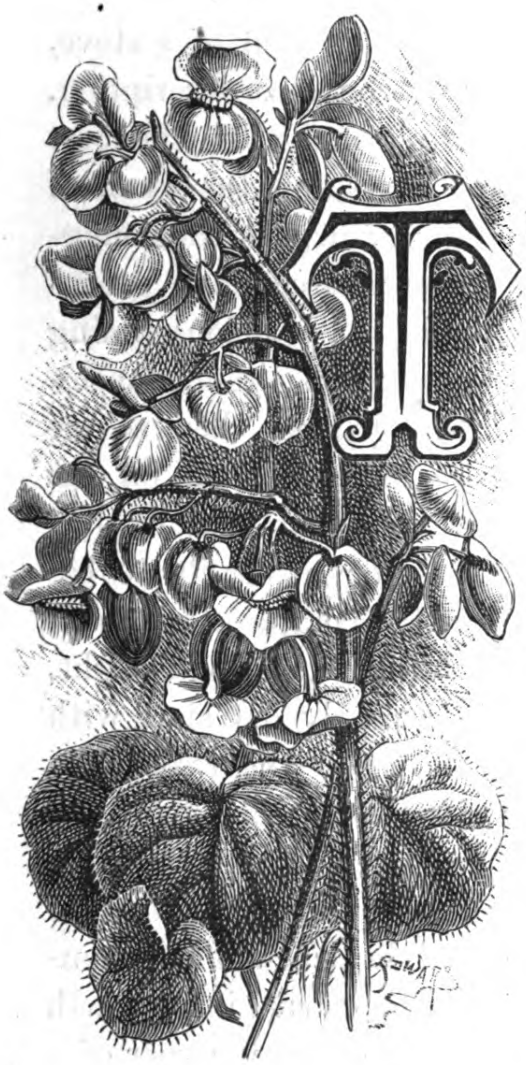
The following ericas are named as suitable to form an interesting collection for a beginner, as they are amongst the most useful and least troublesome of their beautiful family—*Hyemalis*, *Willmoreana*, *Persoluta*, *Rubens*, and *Sindryana*, for winter flowers; *Florida*, *Cavendishiana*, *Exquisita*, and *Aristata*, for flowering in the spring; *Irbyana*, *Jacksoni*, and *Retorta major*, for the summer;

Depressa, *Austiniana*, and *Tortiliflora*, for the autumn. They do not flower at the same time from year to year; they observe what may be called general rather than particular seasons, and hence where there is anything like a collection spring-flowering kinds will be found to flower in autumn, and some few will be nearly always in bloom.

The splendour of the Cape heaths does not diminish our regard for those beauties of the moorland that our native ericas so bravely represent. As the poet writes :—

> "The erica here,
> That o'er the Caledonian hills sublime
> Spreads its dark mantle, where the bees delight
> To seek their purest honey, flourishes,
> Sometimes with bells like amethysts, and then
> Paler, and shaded like the maiden's cheek
> With gradual blushes."

BEGONIA.



THE BEGONIA.

Begonia hydrocotylifolia.

TUBEROUS begonias have been discoursed upon in our Second Series, and the plant before us gives occasion for a brief essay on the species which belong more especially to the stove, and are, with very few exceptions, of no use whatever for the decoration of the open garden. By the term "stove" may be understood, in this connection, the tropical plant-house and the warm greenhouse, and it is advisable to set out with the word "stove" to impress upon the reader the fact that these begonias love warmth and moisture, and the treatment that suits many greenhouse plants will only bring disappointment if applied to them. It is a fact, however, of some importance that many of the tender begonias may be grown in an ordinary greenhouse by an expert in plant culture. A common

greenhouse becomes a stove for a brief space of time, and in the course of a year a certain number of plants of good renown may be so managed that their whole season's growth may be completed by a careful management of fire-heat at first, and sun-heat afterwards, without the aid of a stove, and in a greenhouse of the most commonplace description. We have seen collections comprising many of the best species which are grown for their flowers, and the whole of the section of *Begonia rex*, which are grown for their magnificent leaves, brought to perfection in a common greenhouse, and the secret of success lay in the judicious timing of their growing and resting to suit the circumstances. The most important point, perhaps, is to keep them so dry in winter that frost will not prove injurious, and, on the other hand, to keep them sufficiently moist that vitality will not be impaired; for to be dust-dry is deadly to begonias, but when wintered at a low temperature they must be kept as dry as possible short of killing them by drought. One reason of their endurance in a nearly dry state with a low temperature is the bulky nature of the root-stock, which, in some sense, serves as a bulb or corm. So long as this is not frozen, and can be preserved from shrivelling, it has the power to grow when aided by warmth and moisture; therefore when wintered in a common greenhouse the tender begonias require to be started into growth in spring on a steady hotbed, or in the sunny corner of a greenhouse, where they can be a little shaded and have careful watching, until the growth and the season have both advanced to render such special cares no longer necessary.

A code of culture for the more tender begonias may be given in a few words. They are easily propagated, as they root freely in sandy soil with the aid of heat and moisture,

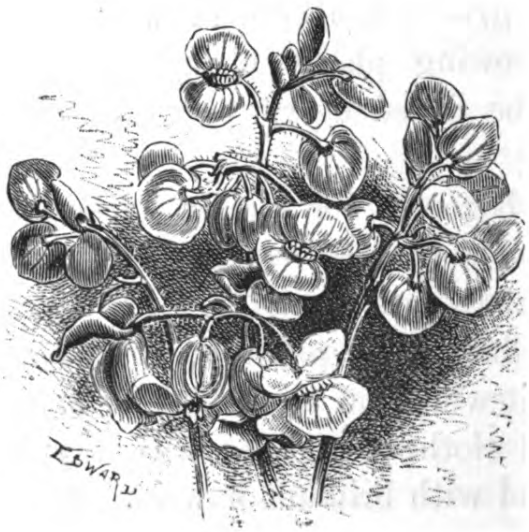
and at this stage must be treated as stove plants. The soil that suits them best is mellow sandy loam enriched with clean leaf-mould, and with the pots well drained as a protection against stagnant moisture. They grow fast and require rather liberal pot-room, but it is good practice for the amateur *always* to keep plants in the smallest pots consistent with healthy growth and free development, for the commonest mistake of beginners is to provide more pot-room than the roots can fill in a reasonable space of time, this resulting in souring of the soil and an arrest of growth altogether. They must be shifted on as necessary, and robust kinds must have larger pots than weak kinds, while the soil must always be rather light and good without any animal manure. A little stopping and training may be necessary in certain cases, but the less the better, free natural growth being best for displaying the real beauties of the plants. Every sort will flower at its own season, unless the management is such as to thwart its purpose. When grown in a common greenhouse, winter flowers are not to be looked for; but with a temperature of fifty to sixty degrees through the winter, the stove begonias will give a fine crop of winter flowers; and as young free-growing plants always flower best, a fresh stock should be raised every year, and old plants should be destroyed.

The best begonias for winter flowers are *Carminata, Chelsoni, Fuchsioides, Hydrocotylifolia, Parvifolia, Rosæflora, Sedeni,* and *Victor Lemoine.* For a stove pillar there is scarcely a finer pillar-plant to be found than *Begonia Fuchsioides;* it will grow to six feet or more if planted in a border, and clothe the pillar with a splendid mass of leafage, overlaid with brilliant flowers. It is not a difficult

matter to flower the hardy tuberous-rooted begonias in a warm greenhouse in winter, and they will always require less heat than the stove kinds.

The leaf begonias are wondrously effective when planted out in the warm fernery. The following are extra fine varieties of this section: *Dr. Regel, Rex, Grandis, Madame Crousse, Madame Mulets, Mirabilis, Splendens, Monsieur Thouvenel.* The prudent purchaser will make his own selection by an inspection of a group in a nursery or at a flower-show; the above-named species will suit those who cannot select for themselves.

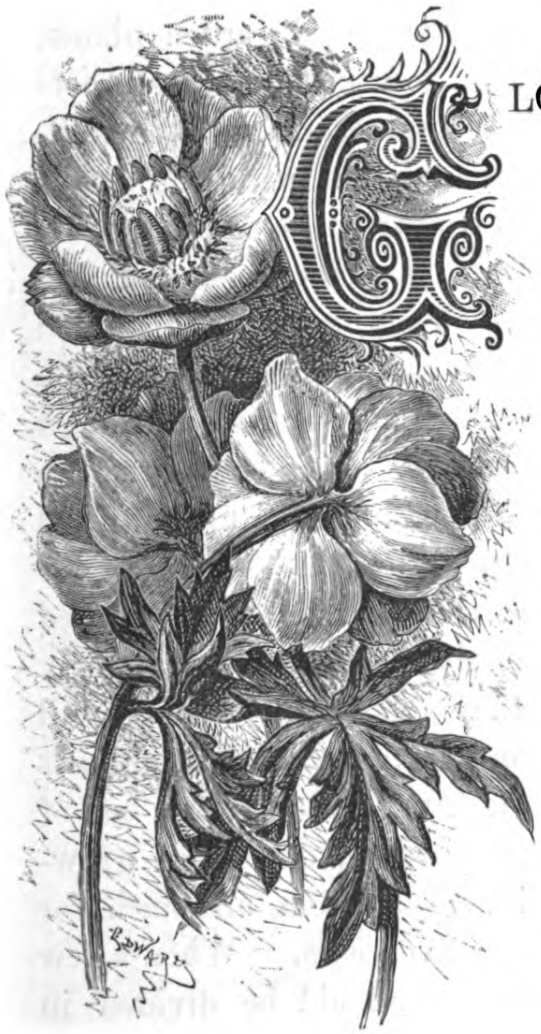
The plant before us is a native of South America. It was obtained for the Berlin Botanical Garden in the year 1843, and was by M. Otto forwarded to the Royal Gardens, Kew. There are two varieties of it, respectively named *manicata* and *hybrida*, but they do not differ in any such degree as to need to be described in this brief notice. All the forms of this species are good; it is a brilliant and satisfying plant when well grown, producing a profusion of its cheerful pink flowers.



GLOBE FLOWER.

GLOBE FLOWER.

Trollius Europæus.



GLOBE flowers and marsh marigolds may be described as the finest of all the buttercups that adorn moist meadows and riverside wastes. They may be seen flowering together in the same fields, but generally speaking the marsh marigold, or *caltha,* has finished its course with joy and settled down to quiet rest ere the globe flower furnishes its golden cups to make the meadow gay. The British globe flower has been honourably associated with the custom of decorating churches with garlands, but is now not much sought for that purpose. But we have seen it plentifully used in the well dressings in the Peak country, making a beautiful fringe to the inscription wrought out in other flowers, "Water is the gift of God," or "Health

and temperance are good old friends." It is one of the palest coloured and least polished of the yellow flowers of the ranunculus family, but it is a truly beautiful flower, with some fine points for the observant artist, and will serve as a lesson for the observant amateur in its love of a deep rich moist soil, for this is a special peculiarity of a majority of its kindred.

The several species of *Trollius* are good garden plants, compact in growth, and not given to rambling; deep rooting and well able to take care of themselves in a suitable, well-drained soil; liking moisture indeed, but requiring to be protected against stagnant water near the surface. They are proper border plants, of little use for grouping, but showing well in large clumps. They may be propagated from seeds and by divisions of the root. It is only when a large stock is required that seeds should be sown, although to raise them is a very simple matter. It is best always to sow in pans or boxes as soon as ripe, and shut up in an old frame; or, lacking the accommodation, the seed may be sown on a sheltered border, and the spot should be marked with a tally, to prevent disturbance and insure timely removal of weeds as fast as they appear. The seeds will not germinate until the following spring, and if the plants are pricked out when large enough to handle, a nice bed of light soil being selected for the purpose, one year's growing will make flowering specimens of them, although for fine clumps we must wait four or five years. When a few plants only are wanted, the roots should be divided in August or September, and the divisions at once planted where they are to remain. To divide into many small pieces will be to risk loss of all in the winter, therefore it is true economy to be content with cutting a strong

root into two or three parts, as, though it may appear an easy matter to cut it into a dozen or more, the expert propagator alone is to be trusted to cut the roots of such plants to so great an extent.

Although hardy, these plants require a little shelter in gardens that are exposed to the full blast of the east wind. In the spring they love humidity above and below, and the drying March winds playing freely upon them will very considerably reduce their vitality. Of this we have had unpleasant experience, for one of our best borders faces the east, and the wind from the Essex marshes sweeps over it in the spring months with a fury that occasionally threatens to kill everything. On the east side of this border all the narcissi thrive to perfection, but the globe flowers are pinched out of character; although in the very same border (which is thirty feet wide, with trees and shrubs everywhere) the globe flowers prosper on the side that faces west. The primulas show the like behaviour: the east wind is deadly to them, but a removal of thirty feet to a sheltered situation and a western aspect makes all the difference; there they grow and glow, and give delight.

Trollius Europæus offers a few varieties that the amateur may find interesting. The ordinary garden form grows to a foot or a foot and a half in height; the flowers are lemon-yellow, and globular, and fine examples measure two inches in diameter. *T. albus* differs in the flowers being smaller and of a paler colour, and the plant of dwarfer growth. *T. altaicus* and *T. Caucasicus* differ by slight degrees, and all are dwarfer than the common form.

Trollius Asiaticus, the Asiatic globe-flower, a native of Siberia, is a distinct and fine plant, the leaves more divided than those of the European plant, and of a richer

colour. The flowers are of a rich golden-yellow colour, and more expanded. The plant grows to a height of eighteen to twenty inches, and flowers earlier than *T. Europæus*. As it does not often ripen seeds, it is usually multiplied by division.

Trollius Dauricus, native of Dahuria, is of robust growth, rising to three or four feet, and producing large lemon-coloured globular flowers, and a somewhat "cabbagy" mass of deep olive green leafage. It is a noble plant, requiring a deep strong soil and shelter from wind. As it ripens an abundance of seed, there will be no difficulty in making stock of it.

Trollius napellifolius is a Carpathian species of fine character, the leaves handsomely divided, the flowers large, globular, of a rich deep yellow colour, showy, and sufficiently abundant to give satisfaction. Its proper place is in a spacious border with pæonies, Oriental poppies, phloxes, and other showy plants of vigorous habit.

EVERGREEN BARBERRY.

EVERGREEN BARBERRY.

Berberis aquifolia.

BARBERRIES are properly arranged in two groups—those with simple leaves, which are called "Berberis" proper, and those with pinnate leaves, which are called Mahonias. The useful hardy shrub now before us may therefore be labelled *Mahonia aquifolia* with propriety, but it is the fashion to regard both sections as in the genus Berberis, which otherwise is well defined, and gives but little trouble. There is no better known evergreen shrub than this, and there are not many so useful. As a hedge tree it is certainly surpassed by the holly; but an admirable way of displaying it is to plant a line in front of a holly hedge, in which position it appears to acquire beauties peculiar to the situation. The ample glossy green leafage becomes richly tinted with shades of scarlet, chocolate, and bronze in

winter, and these colours are strikingly brought out with the rich relieving background of deep green holly. But this berberis is equally useful for grouping in masses, and may be used in various combinations to enrich the garden in the winter months. There is in cultivation a beautiful dwarf variety, called *Undulata nova*, with wavy leaves of a lovely tone of green in summer, and very brightly variegated with shades of red in winter. This we have employed with advantage to form groups, having associated it with such shrubs as variegated hollies, *Cotoneaster Simmondsii*, the green-leaved female aucuba, Darwin's berberis, and the berry-bearing *Skimmia Japonica*. On our cold clay soil these were quite happy, and made rich masses with abundant fresh colouring at all seasons of the year. A groundwork of the emerald-green ivy completed the arrangement, and gave harmonising colour to the whole.

Berberis is admirably adapted for growing in collections, and on this system has often been peculiarly useful in forming an attractive feature of a garden. We had once a set of beds on a spacious side lawn that was partially shaded with trees, these beds being devoted to shrubs of this genus only. For centres of beds we had *B. Beali* and its near relative *B. Japonica*, with *B. fascicularis hybrida*. In large groups around them were *B. stenophylla*, *B. Darwini*, and *B. dulcis*. In the outer parts of the groups were the smaller *B. Hookeri*, *B. glumacea*, *B. repens*, and *B. empetrifolia*. Such groups may be lighted up with a few gladioli, and *Tropæolum speciosum* may be allowed to ramble but not to run riot amongst the shrubs.

The deciduous species are not adapted for such groups: their proper place is in the shrubbery borders. The most interesting of them are *B. Asiatica*, with brilliant green

leafage, and *B. vulgaris*, very showy when laden with scarlet fruit. Of the last-named there are varieties with white fruit, yellow fruit, and purple leaves.

A few fine species are a little tender, and require in gardens near London some amount of shelter, although in the western counties they can hold their own. The principal of these are *B. Nepalensis*, in the way of *B. Japonica*, and *B. trifoliata*, a most beautiful curiosity. It may be described as a horny shrub, with leaves that are very spiny and of various shades of purple and bronzy green. *B. Fortunei* is a peculiar-looking shrub of rigid habit, the colour a bluish tone of green.

A near relative of the berberis is the Chilian shrub, *Berberidopsis corallina*. It is a half-climbing plant, with large, simple, spiny-toothed leaves, and handsome drooping racemes of crimson flowers. This is scarcely hardy, yet a little comfortable shelter suffices for it in the neighbourhood of London.

The queen of the group is Darwin's berberis (*B. Darwini*), and it constitutes a bright memorial of the great naturalist. It is a native of Southern Chili. It loves a moist climate and a peaty soil, but is so hardy and accommodating that it may be said to grow anywhere. It is of dense habit, forming many slender decumbent branches, with spiny leaves in bundles of four and five, of a beautiful green colour, and glossy. Early in the spring it shows a profusion of orange-yellow flowers, that glitter in the sunshine like a shower of gold. It will sometimes flower freely from April to June, and again in August and September, but the spring bloom we can always insure; and that is so cheerful and abundant that if there is no autumnal bloom we cannot with reason complain.

As remarked above, a peaty soil suits the berberis, but they are not particular. *B. aquifolia* will thrive on clay, but is happier on a rich, well-drained loam. Where peat is not at hand for a plantation any good loam will answer, and, if there is any choice, it should be a decidedly sandy loam. As the shrubs ripen berries in plenty there is no difficulty in raising plants from seed. But most of them may be easily propagated in the same way as hollies by taking cuttings of the young wood in autumn, and planting in a frame. In many instances suckers from the roots may be removed to make plants. The beautiful variety of *B. aquifolia* called *Undulata nova* we can only propagate by grafting on seedling stocks of the species.

HEPATICA.

HEPATICA.

Anemone hepatica.

THERE is nothing gained by separating this old friend from its relatives the anemones, but at our own choice we may use the name given above, or we may designate it *Hepatica triloba*. The three-lobed leaf is a distinct peculiarity, but the flowers have a character of their own, and may always be recognised as representing a distinct section of the anemones. The double red variety here figured is one of the best of the series, but all are useful; and the amateur may with propriety secure a complete set, and may then find pleasure in keeping them. Strange to say, these hardy, thrifty, long-lived plants are often lost in gardens through various unpardonable accidents. A sure way of killing hepaticas is to transplant them frequently. But the grand slaughter of the innocents in the garden border is accomplished by

indiscriminate digging, the evils of which course have frequently been referred to in these pages.

The best soil for hepaticas is a deep loam. They will thrive in clay, and one condition of success is good drainage. The double varieties are multiplied by dividing the roots, but the amateur who has had but little experience in propagating and nursing plants may be advised to leave hepaticas alone, for they are amongst the cheapest of hardy plants, and it is likely to prove in the end cheaper to buy than to produce them. However, we must describe the process. The strongest clumps are to be lifted immediately after flowering and carefully divided into separate crowns, each division to have as many roots as can be secured to it. These are to be at once planted in fresh soil and carefully closed in, and lightly covered with some very fine earth. If the soil is well drained, they will in the course of the season become established. Care must be taken that they do not suffer through drought or long-continued sunshine before they have taken hold of their new position. They are thrifty things, but they will certainly perish if sorely distressed, and it is simply because they are not sufficiently looked after by novices that they so often fail, even though properly handled in the first instance. When growing wild the hepatica is a wood-side plant, and this fact should teach us that when punished by division of the root, the plant should not be further punished by exposure to drought and long-continued sunshine. Trade propagators pot the little pieces and nurse them in frames. This insures to them a cool moist atmosphere favourable to renewal of growth. It is better, however, to plant them out and give them a little special attention for a time.

To raise hepaticas from seed is quite a simple matter, and may be recommended to the amateur as a profitable proceeding. There is one precaution needful, and this being observed, the rest is easy. Sow the seed instantly on its becoming ripe. It must not be put away, or it is likely to perish. It is always safest to sow such seeds in large pans or shallow boxes, which should be filled with light rich sandy loam. Scatter the seed thinly, cover with a mere dusting of fine soil, and lay slates or tiles over to keep the soil moist without having to give water until the plants appear. Should watering become necessary—for the seed must never be quite dry—carefully dip the pans or boxes in a sufficiently large vessel filled with water, or leave them in it resting on a pot or brick a sufficient length of time to cause a complete moistening of the whole body of the soil, when they may be taken back to the frame. By this mode of action you avoid displacement of the seed; in fact, the surface soil must not be disturbed at all. Any weeds that rise under the covering slates must be carefully drawn out as soon as they are large enough to be taken hold of.

The germination of the seed is a slow process, but you may expect to see the young plants towards the end of September; if they do not appear, however, you must have patience. When they do appear the slates must be removed. The seed-boxes must remain in the frame for the winter, and be kept only moderately moist, for if really wet when cold weather prevails some of the young plants will damp off. They should have air frequently in mild weather, and advantage should be taken of a bright day to lift them out, dip them, take out weeds, clear the frame, and perhaps put down a fresh layer of clean coal-ashes,

so as to make all sweet and safe against winter damp. From time to time more seedling plants will appear, and at the dawn of spring the boxes will be crowded.

Keep the seedlings in their seed-boxes freely ventilated, and in the month of April remove them to a sheltered shady border near at hand, and convenient for observation. As the little plants make their proper leaves, carefully lift them out with a thin slip of wood and plant them in a border prepared for the purpose; the soil must be sweet and sandy, without manure, and a little shaded. When located in this border, your work as regards the "raising" may be considered finished. You will now wait to see them flower, and they will be in no hurry to tell you what they are and what they mean. But they will pay you well for all proper patience, and as they come into flower you will form a judgment of their merits.

W'NGED BROOM

WINGED BROOM.

Genista sagittalis.

WINGED broom is a broom with wings, or phyllodes which are much developed petioles, and serve all the purposes of leaves in the economy of the plant. It happens that several members of the pea family, to which the plant before us belongs, are favoured by nature with the possession of wings. There is the winged pea (*Tetragonolobus*), the pods of which are furnished with four wings, suggestive of the windmill that is wanted for grinding the seeds. There are acacias with winged stems, such as *A. alata*. We have in our woods the crimson grass vetchling (*Lathyrus nissolia*), which never produces true leaves, but only flattened leaf-stalks; the yellow vetchling (*Lathyrus aphaca*), which has sagittate stipules that do duty for leaves; while in the

greenhouse may perhaps be found *Bossiæa rufa*, which has flattened stems, and does very well without leaves proper.

The winged-stemmed broom (*Genista sagittalis*) is a native of Europe, and quite hardy in the English garden. It will thrive in almost any soil, but must have a sunny situation. Its habit is procumbent, and therefore it is not quite a good border plant, and, moreover, its curious and interesting character cannot be fully displayed in a border. The best place for it is a sunny ledge of a good rockery, where it can spread without looking untidy, and perhaps hang over and show its heads of flowers and winged stems to advantage. To increase the stock, the plant may be divided in the root, but a much better way is to sow the seeds in the autumn in a frame, and in the following autumn put out the plants where they are to remain to flower.

How the broom came to be called *genista* no one can tell; the accepted derivation is from the Latin *genu*, the knee, but we fail to see in any of the *genistas* a justification, for the only suggestion of a knee is to be found in their flexibility, and there are so many flexible plants that there seems to be no special reason for noticing in the name the bending power of this genus in particular. The Plantagenets associated the history of their house with the common broom, which we incline to regard as the most splendid of all the wildings of Northern Europe. The first of the race to come under the shadow of the golden broom was Géfroi, Duke of Anjou, father of our Henry II. He playfully adorned himself when on the field of battle with a sprig of flowery broom, or, as it has been said, "he wore commonly a broom stalke in his bonnet." Thus he came to be called "Plantagenet," from the *Planta genista*,

and the name descended honourably for the most part until it reached Richard III., when it ceased, as though ashamed of its latest associations, for after the cruel and treacherous Glo'ster there were no more Plantagenets. But the broom lives, and when it appears in full glory on the sunny sandy slopes that it loves, it becomes a question if there is any British wild plant or any European wild plant that can surpass it in glory. The gorse might compete sometimes, but the careful critic will see a difference. The gorse is grand indeed, but the broom is brighter in every way, and in the glitter of gold stands alone in its splendour.

"Time was when thy golden chain of flowers
Was link'd the warrior's brow to bind;
When rear'd in the shelter of royal bowers,
Thy wreath with a kingly coronal twin'd.

"The chieftain who wore thee high on his crest,
And bequeath'd to his race thy simple name,
Long ages past hath sunk to his rest,
And only lives in the voice of fame.

"And one by one to the silent tomb
His line of princes hath pass'd away;
But thou art here with thy golden bloom,
In all the pride of thy beauty gay."

The species of broom that are most deserving of notice as garden plants are the following :—

Spanish broom (*Spartium junceum* or *Genista Hispanica*). This resembles the common broom; the stems are leafless or nearly so, the flowers large, yellow, and fragrant.

Portugal broom (*Spartium album* or *Genista alba*). This has slender, furrowed, erect branches, a few leaves of one, two, or three hairy leaflets, and an abundance of flowers, white or pink.

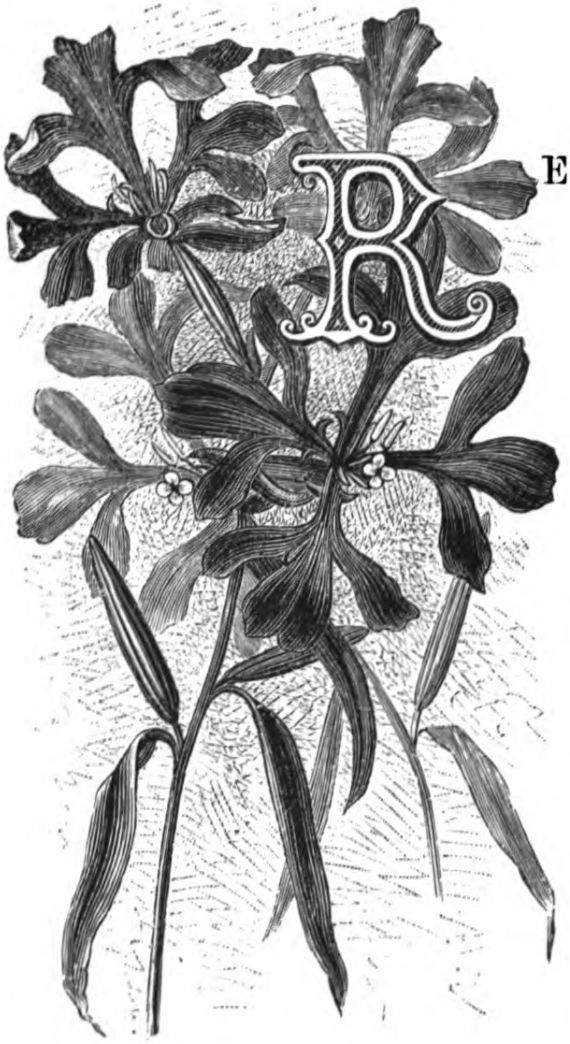
Greenweed (*Genista tinctoria*) is a very pretty native shrub, met with on moist peaty land, and well adapted for the garden rockery. There is a double variety that makes a fine display of its yellow flowers.

Common broom (*Cytisus scoparius*), also classed generically as *genista*, *spartium*, and *sarothamnus*. This has slender, angular, silky branches, on which appear the splendid yellow flowers in the month of May. There are several varieties: one with double yellow flowers, another with white flowers, and yet another with purple flowers. The common yellow and the white are the best; the purple variety is a mere curiosity.

Black-rooted broom (*Cytisus nigricans*) is a pretty shrub, with leaves in threes and terminal racemes of yellow flowers. It is a good shrubbery and rockery plant.

Round-headed broom (*Cytisus capitatus*) is a very hairy plant, with flowers in a round head.

ROSY CLARKIA.



ROSY CLARKIA.

Clarkia pulchella.

REMINDERS of David Douglas are plentiful in the garden, and more especially amongst the hardy annuals that are collectively described as "Californian." The favourite annual here figured was discovered by Mr. Lewis on the Kooskoosky and Clarke rivers in North America, but the discovery only resulted in placing it in the herbarium, and from there it obtained a place in books. For the embellishment of our gardens by this beauty we are indebted to Douglas, who found it in plenty in dry, open, sandy soils, near streams, from the great falls of the Columbia on the north-west coast of America to the Rocky Mountains. He sent seeds to the Horticultural Society, and thus secured its diffusion, to the advantage of all the lovers of a flowery garden.

It is an interesting plant, with flowers of singular construction. In their simplest form they are four-parted, the petals boldly three-lobed, the stigma not less boldly four-lobed agreeably with the number of sepals and petals, the stamens eight in number, four of which are sterile, and thus in this particular the fourfold arrangement is undisturbed. Dr. Lindley, in describing the family of Onagrads to which the Clarkia belongs, says the number 4 prevails through every one of the floral organs. In the Circæa or enchanter's nightshade the number is halved, there being but two sepals, petals, &c., and in Lopezia, a near relative of the last-named plant, the customary number seems to be still further interfered with, for that genus shows but one stamen; in reality, however, there are two stamens, one of them perfect and bearing an anther, the other sterile and in the form of a spoon-shaped petal. Although the petals are in general of a large size and in a high state of development, yet there is a tendency among the species to lose them; I have seen an entire plant of *Clarkia pulchella* with every flower apetalous—that is, without petals. One species, *Clarkia Skinneri*, is always so.

Amateurs, generally speaking, are not sufficiently acquainted with hardy annuals. They sow the seed in spring, and in due time see the flowers, and perhaps suffer a shadow of disappointment. Or if quite satisfied, perhaps they have no idea of the difference between the flowers they have and the flowers they might have by a scientific mode of procedure. It may be assumed that they sow the seed late, so that the plants are hurried into flower before they have had time to make a deep root-hold. It may further be assumed that they sow the seed too thickly, and do not thin out the plants with sufficient courage, the result in this case being

that a hurried, crowded, weakened plant falls far short of what, under happier conditions, it might and would be.

Spring sowing will do very well, but February and March are the proper months for the operation. If the seed does not come up quickly, it is no matter. It will not perish; it will move in its own time, and the time depends on the temperature of the ground. When the temperature rises to the proper figure, the seed will sprout and will have the longest season possible for spring-sown seed to make a strong plant and do its duty. But the life of the business consists in severe thinning. In this operation the amateur is often timid, and will leave on the ground a crowd of plants that will simply starve one another, and make in the end but a poor show. For every particular annual we will say there is a particular distance, say four, six, eight, or even twelve inches. But the plant itself will tell you all about it. Thin the seedlings, put them in the first instance three or four inches apart. The result will be a more vigorous growth and a tendency to spread. Now pull out a plant here and a plant there where there happens to be a little crowding, observing as a rule that no two plants should overlap one another. By persevering in this way you reach the true figure. Mere thinning in a destructive spirit will, of course, not make a gay garden. You want rich clumps, and you must hit the nice point where each plant has light and air and there are no great gaps between them. The Clarkias on good soil will do well at six inches apart.

But spring sowing is not the best way to secure a bloom of these hardy annuals. The proper time to sow is autumn, not earlier than August and not later than September. In late cold districts the first week in August will be none too

soon; in warmer places the sowing may be deferred to the end of September. In the neighbourhood of London the last week of August is the best time. Sow on a well-drained bed of poor sandy soil in a quite open position sheltered from the north, and thin as soon as the plants appear, leaving them about two inches apart. In the month of February, when mild weather is prevailing, carefully transplant to the place where the plants are to flower, having first prepared the ground, for it will be a kind of execution to stick them into stubborn pasty stuff that has been in no way ameliorated for the purpose.

PRINTED BY CASSELL & COMPANY, LIMITED, LA BELLE SAUVAGE, LONDON, E.C.