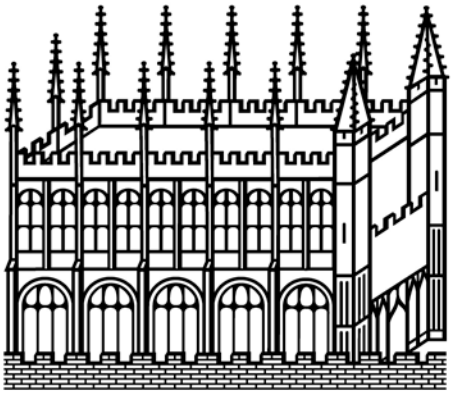
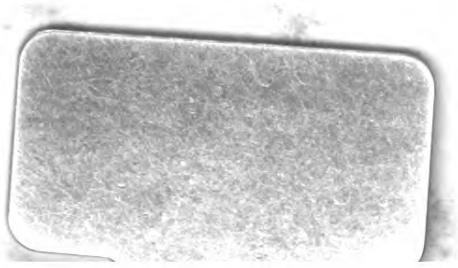




FAMILIAR
GARDEN FLOWERS.

FIGURED BY

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

AND DESCRIBED BY

SHIRLEY HIBBERD.

"Amid my garden's broider'd paths I trod,
And there my mind soon caught her favourite clue;
I seem'd to stand amid the church of God,
And flowers were preachers, and (still stranger) drew
From their own life and course
The love they would enforce;
And sound their doctrine was, and every precept true.
* * * * * *
Then cried the garden's host with one consent:
Come, man, and see how, day by day, we shoot,
For every hour of rain, and sunshine lent,
Deepen our glowing hues, and drive our root;
And, as our heads we lift,
Record each added gift,
And bear to God's high will, and man's support, our fruit."

EVANS, *Garden Lecture.*

Third Series.

WITH COLOURED PLATES.

CASSELL & COMPANY, LIMITED:

LONDON, PARIS & NEW YORK.

PREFACE.

THIS is the preface to the Third Series of this work, and it seems to be necessary to say something. And yet if you will just turn from this page and open the window and look at the garden, the flowers will speak with far better effect than the author can possibly hope to do. Thus, by going to the fountain-head—which, of course, is out of doors—you will get a better discourse than can be attempted here, whether as prologue or epilogue.

"The flowers have glad voices," and the less we have to say, the more agreeably will their utterances be heard. Those who are deaf to their voices may be able to see their colours or inhale their fragrance, and they will have only themselves to blame if they fail to appreciate their innumerable beauties.

CONTENTS.

SYNOPSIS.

In continuing the notes, as in Series I. and II., care has been taken to avoid repetitions, as also to select subjects properly pertaining to the present volume by reason of the figures and descriptions it contains. Such a work as the present can never serve the purpose of a treatise on botany, and no pretence can be made thereto; but these notes may often supply acceptable information on the genera and orders of the plants selected for illustration, and save the reader the trouble of travelling further for it.

LILIUM.—See synopsis, First Series, page vii.

RHODODENDRON. The name is compounded from *rhodon*, rose, and *dendron*, tree. It is the rose-tree, or tree-rose. Natural Order, *Ericaceæ*. Linnæan: 10, *Decandria*; 1, *Monogynia*.—The rhododendrons constitute a great and important section of the family of heaths. They are shrubs or trees, mostly evergreen, with funnel-shaped flowers consisting of five lobes with ten stamens, but there are a few curious exceptions to the rule. The magnificent *Rhododendron Griffithianum* has sixteen stamens, and some of the species have but eight. The casual eye recognises the more prominent characters, such as the style of the leafage, which is very distinct, and the appearance of the flowers in dense clusters at the ends of the branches, the buds before expansion being clothed with leafy scales. There are, however, some singular exceptions to the prominent characters by which the rhododendrons are generally known. Thus, the Dahurian species is deciduous and the leaves are small, so that the plant has always a spare appearance; the flowers, moreover, occur singly, or at most only two or three together. And yet this is much valued in the American garden for its early flowers, which appear in advance of the leaves and are of a lovely purple colour. These and their companions, the azaleas, are commonly spoken of as "American plants," but the New World has supplied but few of the many that are in cultivation. *Rhododendron maximum* and *Azalea calendulacea* are natives of the North American continent, but the far east has supplied more species than the far west to our gardens—Siberia, China, the Himalayas, and Asia Minor being the principal sources of supply. The Pontic rhododendron is an example of a kind of vegetation common to some parts of Asia Minor, where may also be found the Pontic azalea, which has yellow or orange coloured flowers. Among the flowers of the Alps occur two rhododendrons, namely, *R. ferrugineum* and *R. hirsutum*, which are of dwarf growth and exceedingly beautiful when in flower. Between the rhododendrons and the azaleas the differences are but few and slight, but

the cultivator distinguishes them readily, for in general complexion they differ in a greater degree than in details of structure. The stamens are usually five in number, the flowers are often glandular and clammy, and many of the species are as decidedly deciduous as the rhododendrons are decidedly evergreen. But there are species intermediate between the two genera, and therefore to keep them apart is a matter of convenience more than of necessity.

DAISY, from *dæges-eage,* the day's-eye, or eye of the day.—This etymology is sometimes regarded as fanciful, but it is adopted by all authorities, and is justified by reference to Chaucer and the earlier Saxon vocabularies. Richardson and Skeat both favour it, the latter remarking, "from the sun-like appearance of the flower." The lines in Chaucer's Prologue to the "Legend of Good Women" exactly suit for dictionary purposes. He says :—

> "Well by reason men it call may
> The *deisie,* or els the *eye* of the *day.*"

In synopsis, First Series, page xi., will be found under "Aster" the characters of the great family of composite flowers to which the daisy belongs. Its place in the vast series is with the erigeron or stenactis, in which the ray florets are in several series. The seeds of the daisy are not furnished with a downy sail to carry them abroad, and the receptacle is conical. The botanical name, *Bellis perennis,* does not need to be explained, but its appropriateness is so pleasing as to have a poetical significance. It is truly a perennial beauty, and it is a matter for regret that it is but rarely seen in its proper beauty as a garden flower.

SPANISH IRIS.—This iris (*I. xiphium*) and the English iris (*I. xiphioides*) are so nearly alike that there can be no impropriety in regarding them as forms of one and the same species. They both belong to South-western Europe, where we meet with another differing immensely in character, the great *Iris Iberica,* a species lately introduced and now much sought after by collectors of hardy plants. The iris family afford the student a ready opportunity of observing some of the more prominent characters of monocotyledons in which the flowers are fashioned on a model greatly differing from those of dicotyledons. The former have no distinct calyx and corolla, but in the latter these are usually conspicuous and afford useful characters in the determination of species. As a garden plant the Spanish iris represents the bulbous-rooted section of iris, as the German iris represents the rhizomatous section. The bulbous species have flat or incurved leaves, but the fleshy, fibrous-rooted kinds have ensiform or "flag" leaves. A sketch of the characters of the order will be found in synopsis, First Series, page xiii.

BEGONIA. Named in honour of M. Begon, a French patron of botany. N.O., *Begoniaceæ.* LINNÆAN : 21, *Monœcia ;* 9, *Polyandria.*—These are interesting plants to the botanist no less than to the horticulturist. To discover their alliances has greatly perplexed the masters of classification, but Lindley made the best guess in associating them with the cucurbits, as the observant eye will soon discover after having had the clue revealed. The manner in which the male and female flowers appear side by side, and the disposition of stamens and

stigmas, as well as the whole process of reproduction, the winged ovary being a very fair though very distant representative of a gourd, afford ready aid to the student in the determination of relationships. Lindley remarks ("Vegetable Kingdom," 318):—"The discovery by Mr. Hartweg of begonias scrambling up trees and shrubs to the height of twenty-five feet, renders the resemblance almost complete." The begonias are herbaceous plants for the most part, but the order comprises plants of a more robust growth than the begonias of the gardens, but of trees and shrubs in any proper sense of those terms there are none. The order belongs wholly to the new world, being unknown (except as exotic) in the old, although the conditions requisite to the growth of begonias appear to be complete in many parts of Africa and Asia. All the plants of this order have an acid juice, and the roots are astringent and bitter. The leaves are alternate, and unequal at the base, often very richly and variously coloured; the flowers are white or pink, the female flowers being distinguished by the lobed spiral stigmas and the winged fruit.

BELL-FLOWER, or **CAMPANULA.** N.O., *Campanulaceæ.* LINNÆAN: 5, *Pentandria;* 1, *Monogynia.*—There appears to be always occasion for suspecting plants that exude a milky juice, and the campanulas come into the suspicious category, for they are acrid and of but small importance in relation to the food of man. The rampion, that is valued in some degree as a salad plant, is a true campanula, and a few roots and fruits of campanulaceous plants are eaten in places where the natives are not particular about their salads and side-dishes. But the best we can get out of them is their beauty, which for the present appears to be sufficient to insure them abundant respect and universal cultivation. The campanulas are all herbs and undershrubs: there are no trees in the order. The flowers present a series of constant characteristics, so that when presenting considerable variation for our amusement they are still very much alike. They are bell-shaped or tazza-shaped; they are blue, or purple, or white; they have each but one corolla piece, and that is cut into five lobes, the calyx also being five-lobed. The rarity of a yellow flower in this order need not be insisted on; even red flowers are scarce, and scarlet out of the question. De Candolle considers the campanulas and lobelias to be closely allied, but the first are distinguished by their regularity in form and symmetry in the number of parts. To the casual observer, the occurrence of brilliant scarlet flowers in the lobelia family places it far apart from the campanula family. A brief notice of the order will be found in synopsis, First Series, page ix.

RANUNCULUS, from *rana,* a frog, the plants that give a general name to this order being found in meadows and marshes, as is the case with our common buttercup.—They are familiarly known as *crowfoots,* but this is a subtle designation, no resemblance to the foot of a crow being traceable in either leaves or flowers. It happens, however, that Dioscorides named a plant the coronopus or crow's foot, and this has been identified as the ranunculus, but why and how we confess we cannot say, unless it be that the leaves of the marsh and meadow species are occasionally stained with blackish patches that fancy may convert into footprints. The plants of this order are mostly herbaceous, the leaves are usually much divided, and the leaf-stalk in some degree clasps the stem. Although the flowers vary to an immense ex-

tent in form and colour, they are generally conspicuous and beautiful; even our common buttercup is one of the loveliest of flowers, and the hellebore, clematis, anemone, and delphinium illustrate the floral importance of the family. This is a poisonous family, with watery juices, the leading characteristics being causticity and acridity. One species of buttercup is named *Ranunculus acris* on account of the acrid property of its watery juice. The common monkshood (*Aconitum napellus*) is much to be feared as a poisonous plant, because its roots have often been served as horse-radish and have proved fatal to those who have eaten them. This plant, indeed, should be excluded from gardens, notwithstanding that it is a noble adornment of the shrubbery border. It is interesting to find in a family so notorious for their noxious properties an agreeable and wholesome fruit called the May-apple, or wild lemon, the produce of *Podophyllum peltatum*, but all other parts of this plant are poisonous, and the root is well known in medicine.

WINTER HEATH. The *Erica* derives its name from *erico*, to break, in allusion to the brittle nature of the wood. N.O., *Ericaceæ*. LINNÆAN: 8, *Octandria;* 1, *Monogynia.*—This great order is very clearly defined in its leading characters; it furnishes but few "useful" plants, but comprises many of the most beautiful that are known to us. They are shrubs and undershrubs; none are strictly herbaceous; nearly all are evergreen, the exceptions to this rule being for that reason conspicuous. The flowers vary much in form, but are usually composed of a four or five cleft calyx and a four or five cleft corolla, which is tubular or campanulate, rarely fully expanded, even in the rhododendrons, but in the heaths is distinctly tubular or pouched. The order comprises the ericas, rhododendrons, azaleas, kalmias, gaultherias, arbutus, andromedas, clethras, and menziesias—names suggestive of the liberal contributions to the garden of the Ericaceæ. The bilberries come near to the heaths, but differ in the situation of the ovary; and the epacrids also come near, but differ in the character of the anthers. The gaultheria produces an edible berry, and the fruit of the arbutus may be said to be edible, though few human palates can relish it as do the thrushes and blackbirds. The story of the Pontic honey is discussed at page 149 of the Second Series.

AVENS. The name may be traced to *avence*, and thence to avantia or *avencia*. In "Ortis Sanitatis" it appears as *anancia*. But whatever its form or sound, it is impossible now to say in what way the name and the plant are related.—For notes on "Geum" see synopsis, Second Series, page x.

TRADESCANTIA. Named in honour of the Tradescants, of whom some account is given at page 38. N O., *Commelinaceæ*. LINNÆAN: 6, *Hexandria;* 1, *Monogynia.*—These pretty flowers do not rank high with the gardener or the chemist, or the man whose taste for science is promoted only by the impulse of hunger. In notes to Second Series, page xv., we have dismissed the order curtly as of "small consequence," and the genus Tradescantia can do nothing to give it importance. For the botanist, however, there is a point of interest in the midway place between sedges and lilies that is occupied by the spider-worts. Brown compares them with rushes, Lindley compares them with alismads; the amateur gardener will find his own comparisons when the pretty flowers are before him, and he cares more for their beauty than their place in any classification.

ACHIMENES, from *cheimaino,* sensitive to cold, in allusion to the tender constitution of this tribe of plants. N.O., *Gesneraceæ.* LINNÆAN: 14, *Didynamia;* 2, *Angiospermia.*—A remarkable group of soft-textured, fleshy herbs or shrubs, occasionally climbing or creeping, but mostly compact in growth and springing from scaly tubers or fleshy root-stocks. The leaves are wrinkled or corrugated, the flowers showy and comprising all colours, the calyx five-parted, the corolla five-parted, irregular tubular, the stamens two or four, the fifth, needed to establish symmetry with the lobes of calyx and corolla, being traceable in a rudimentary state. These herbs come near to the bignoniads and the broom-rapes, but have no proper alliance with them. They are mostly tropical; though widely scattered, comparatively few are of any importance in the arts.

CORONILLA, from *corona,* a crown or garland. N.O., *Leguminosæ* or *Fabaceæ.* LINNÆAN: 17, *Diadelphia;* 4, *Decandria.*—The immense order of fabaceous plants, formerly known as the Papilionaceæ, or butterfly flowers, is of great importance in all the ways in which plants "come home to us." They supply many kinds of food and medicine, materials for the manufacturer, fine features in scenery, and gay flowers in the garden. When the bees "hum about globes of clover and sweet peas" they tell us in glad language that the butterfly flowers are prolific of honey, and they show how perseverance overcomes obstacles, for if the bees cannot force their way into the flowers they gnaw holes in them and thus secure the sweet booty. There are about 467 genera and 6,500 species of papilionaceous plants, and they range in stature and importance from the alpine oxytropis, three inches high, to the gigantic and gorgeous amherstia of the Indian forests and the locust-trees of the western continent, some of which Martius has estimated to be as old as the time of Homer or earlier. The typical flower and fruit are well known, and the common pea represents the order admirably. But the exceptions to the typical style are numerous. However, this curious fact comes into the story, that it is quite unusual for a truly leguminous plant to depart from the type in both flowers and fruits; it is the rule that if the flowers change the pods remain, and *vice versâ.* Another common character is the divided leaf; but to this also many exceptions occur. The first point, however, that should have attention in the study of this order is the construction of the flower, which offers its own peculiar commentary on the Darwinian doctrine that requires flowers to be fertilised with pollen not of their own producing, or, in other words, the doctrine that degeneracy must follow upon self-fertilisation. Generally speaking, no doubt, they are self-fertilised. This order is prolific of flowers, but very few double flowers occur; those we call to mind at the moment are Genista tinctoria, Spartium junceum, Ulex Europæus, Lotus corniculatus, Orobus vernus, and Wistaria sinensis, the last producing occasionally two ovaries.

CROWN IMPERIAL, or **FRITILLARIA.** The disposition of the flowers explains the familiar name. The botanical name is from *fritillus,* a chess-board, in allusion to the chequered colouring of some species, more especially *F. meleagris.* N.O., *Liliaceæ.* LINNÆAN: 6, *Hexandria;* 1, *Monogynia.*—To say that the fritillary is a liliaceous plant is like saying it is a vegetable plant, for the lily family is so vast that this comparatively humble flower seems lost in it. There are nearly 150 genera and quite 1,200 species of liliaceous plants, and

they comprehend such diverse subjects as true lilies, tulips, dracænas, aloes, squills, asparagus, onions, the New Zealand flax, and the Australian grass-tree. It will be seen, therefore, that the order comprises herbs, shrubs, and trees, with bulbous, tuberous, and fibrous roots, and of the most varying aspects imaginable. But they agree in having flowers in which calyx and corolla are generally confounded and coloured alike, the flowers being usually six-divided with six stamens and a three-celled ovary. It is a magnificent family that no botanist has studied sufficiently, and that will surely be some day broken up and put in order, for it cannot be doubted that as it now stands it is made up of incongruities. The position of the fritillary in the order is with the lilies and tulips, to which it is obviously allied by the form of the flowers and the herbaceous growth and bulbous root.

AGERATUM, from a combination of *a*, the privative, and *geras*, old, meaning a plant ever young, in allusion to the fact that the flowers do not change colour with age. N.O., Composites, or *Asteraceæ*. LINNÆAN: 19, *Syngenesia;* 1, *Æqualis.*—See sketch under "Aster," synopsis, First Series, page xi.

HAWKWEED, or **HIERACIUM.** The familiar name is explained in the description at page 57. The botanical name bears the same mysterious relation to the employment of the plant in aid of the eyesight.—See under "Aster," synopsis, First Series, page xi.

LINUM.—See synopsis, Second Series, page xiii.

DIANTHUS, from *dios*, divine, and *anthos*, flower, the divine flower, or flower of the gods. N.O., *Caryophyllaceæ*. LINNÆAN: 10, *Decandria;* 4, *Pentagynia.*—A sketch of the essentials of the order will be found under "Lychnis," synopsis, Second Series, page xii.; the genera number 53, and the species 1,055, in Lindley's estimate. It is interesting to make note of the characters of those that lie far apart from the dianthus, as the silene, saponaria, spergula, and arenaria. A cerastium, for example, is a member of the order, and so also is a stellaria, or chickweed. But the relations are easily recognised in the opposite and entire leaves on stems with tumid nodes, and the general fashion of the flower. The nearest alliance of the caryophyllaceous plants is with the purslanes, which have unsymmetrical flowers.

NARCISSUS.—See synopsis, Second Series, page ix.

GLOXINIA, named after P. B. Gloxin, a botanist, of Colmar. N.O., *Gesneraceæ*. LINNÆAN: 14, *Didynamia;* 2, *Angiospermia.*—See under "Achimenes," page xi.

DAFFODIL.—See under "Narcissus," as above.

HONESTY, or **LUNARIA.** The first name is commented on in the description; the second refers to the moon-shaped seed-pods. N.O., Crucifers, or *Brassicaceæ*. LINNÆAN: 15, *Tetradynamia.*—The brassicaceous plants have the merit of distinctness, being "cruciferous

or four-divided in their flowers, and they agree pretty closely in properties, being mostly wholesome, pungent, and highly charged with compounds of sulphur, a circumstance that accounts for the offensive odour they engender in the process of decay. They are all herbaceous or sub-shrubby; there are no trees in the order. The leaves are alternate, the flowers without bracts, the stamens six, sepals four, the petals four, stigmas two, the fruit a silicule or silique. It is a remarkably natural order, definitely circumscribed, and of great importance in its uses and relations. In the colouring of the flowers white and yellow predominate, but shades of red and purple occur as in stocks, honesty, candytufts, and aubrietias. The number of the stamens constitutes a curiosity in this family, and their disposition is equally curious. The symmetry that prevails so generally in the several organs of fructification is here strangely to be seen, for the stamens should number four or eight and be regularly disposed in relation to the sepals and petals, neither of which is the case. Lindley is inclined to account for the apparent departure from a symmetrical arrangement by supposing that the original number of stamens has been lessened by the non-development of such as are required to complete a hypothetical arrangement.

PELARGONIUM, from *pelargos*, a stork, in allusion to the beak-like seed-pod. N.O., Crane's-bills, or *Geraniaceæ*. LINNÆAN: 16, *Monadelphia*; 4, *Heptandria*.—The great family of geraniums has but a small place in the arts, though a large place in the garden. They are herbs or shrubs, with tumid stems, leaves alternate or opposite, and flowers white, red, or purple, rarely yellow. The flowers are five-divided in sepals and petals, and the stamens are (hypothetically) in numerical harmony with the petals, being twice or thrice as many, except when some are abortive. The curious results of the non-development of parts required for the complete agreement of a species with the characters of the order are amusingly illustrated by Endlicher's pelargonium, which has but two petals, owing to the suppression of three, the rudiments of which are visible. The one distinguishing character is what Dr. Lindley describes as "the long, beak-like torus, round which the carpels are arranged, and the presence of membranous stipules or joints which are usually tumid." Plants that have not these peculiarities are not proper members of the Geraniaceæ. Between pelargonium and geranium the difference is obvious to the casual observer, and needs but to be pointed out to be readily understood. In pelargoniums the petals are unequal, and it matters not how "highly-bred" the florist's pelargoniums may be, the difference in size of the two lower petals is always discernible. In geranium the petals are all of one size and the flower is perfectly symmetrical. There are many hardy geraniums, but there is only one hardy pelargonium, and that is *P. Endlicherianum*, referred to above as having an abnormal flower.

KERRIA, named after M. Kerr, formerly superintendent of the Botanical Gardens, Ceylon. N.O., *Rosaceæ*. LINNÆAN: 12, *Icosandria*; 3, *Trigynia*.—The nearest alliance of Kerria is with spiræa. See under "Rosa," synopsis, Second Series, page vii.

OXLIP.—See under "Primula," synopsis, First Series, page ix.

NEMOPHILA, from *nemos,* a grove, and *phileo,* I love, the genus consisting of woodland flowers. N.O., *Hydrophyllaceæ.* LINNÆAN: 5, *Pentandria;* 1, *Monogynia.*—The order comprises smallish herbs and trees of comparatively little importance, as they have no place in the arts. The leaves are often ten-lobed, the flowers in racemes or spikes, occasionally solitary and axillary; they are five-parted, as in the flower before us; the fruit is a capsule. They are nearly allied to the phloxes, to the primulus, and to the borageworts. The pretty eutoca, a favourite garden flower, is a member of this order.

CAMELLIA. Named after Camellas, a Moravian missionary. N.O., *Theads.* LINNÆAN: 16, *Monadelphia;* 8, *Polyandria.*—The theads, or tea-plant family, are usually headed *Ternströmiaceæ,* after M. Ternström, a Swedish botanist, but there appears to be more comfort in recognising them as the family that provides us with our tea. They are all trees or shrubs, with alternate, coriaceous leaves, usually undivided. The flowers are symmetrical in their aspects, but unsymmetrical in the numbers of their several parts, as there are five to seven sepals and five to nine petals, and stamens of indefinite number. The fruit is a capsule; in the camellia it is like a small apple, and contains many oily seeds. The tea-plant, *Thea,* is closely allied to the camellia, and as a matter of fact the leaves of our familiar favourite contain a certain quantity of thein and might be made available for tea. But the beauty of the camellia is sufficient for its fame.

HELIOTROPIUM, from *helios,* the sun, and *trope,* turning. N.O., *Ehretiaceæ.* LINNÆAN: 3, *Triandria;* 1, *Monogynia.*—This is a small order, comprising herbs, trees, and shrubs, with a harsh pubescence; the leaves simple, the flowers gyrate, the corolla in one piece. The nearest alliance is with the borageworts, and therefore the resemblance of the flowers of the heliotrope to those of the myosotis is not an accident, but has a scientific significance. Most of the ehretiads are tropical, and occur in both hemispheres.

BERBERIS is named from the Arabic *berberys.* N.O., *Berberidaceæ.* LINNÆAN: 6, *Hexandria;* 1, *Monogynia.* The "barberry" in all its forms is easily recognisable, and is one of the most interesting of the many families of familiar plants our gardens afford the means of studying. The order comprises a few herbaceous plants, such as the epimedium, a peat plant of great beauty, but trees and shrubs prevail, for the most part hairless, but often very shiny. The leaves are compound, the flowers solitary, consisting of three to six sepals and petals systematically arranged. The fruit is a capsule or a berry, the more conspicuous species of berberis producing an abundance of handsome berries of a sharp, austere flavour, but wholesome and adapted for making preserves and wines. The genus *Berberis* is the most important, and is by some authors separated from *Mahonia,* the first comprising the kinds of which *B. vulgaris* is the type, the second those of which *B. aquifolia* is the type. The distinction serves no useful purpose, or at the best only marks the two ends of a system of gradations. As garden plants the shrubby kinds are of the highest importance, being hardy, various in aspect, handsome, and producing a gay show of

yellow flowers in the spring of the year. The irritability of the stamens is a point of some interest: when touched at the base with the point of a pin they all spring forward and clasp the pistils.

CENTAUREA, from *centaury*, a plant fabled by Ovid to have caused a wound in the foot of Chiron, one of the horse-breakers of Thessaly. N.O., Composites, or *Asteraceæ*. LINNÆAN: 19, *Syngenesia;* 3, *Frustranea*.—For general characters see under "Aster," synopsis, First Series, page xi.

GERANIUM.—See under "Pelargonium," page xiii.

AVENS.—See under "Geum," synopsis, Second Series, page x.

CLEMATIS.—See synopsis, Second Series, page viii.

PÆONIA, the Pæony is named in honour of Pæon, a physician, who first used it medicinally to cure Pluto of a wound inflicted by Hercules. The more "familiar" name is Peony, a corruption that has the merit of a musical sound. N.O., Crowfoots, or *Ranunculaceæ*. LINNÆAN: 13, *Polyandria;* 2, *Digynia*.—The pæony belongs to the helleborus section of the crowfoot family, its nearest allies being the aconite, delphinium, aquilegia, hellebore, and marsh marigold, or caltha. The leading characters of the order are conspicuously displayed in the pæony. The coralline pæony is accounted a British plant, being found wild in several stations. Some grand species have been introduced to our gardens from Siberia, China, and Japan. The tree pæonies, or "moutans," are remarkable for the gorgeous flowers they produce and their exceedingly hardy constitution.

AQUILEGIA, from *aquila*, an eagle, the flower often bearing a resemblance to a bird. The garden name of Columbine has a similar meaning, referring to a fancied resemblance of the flower to a pigeon. N.O., *Ranunculaceæ*. LINNÆAN: 13, *Polyandria;* 5, *Pentagynia*.

POLEMONIUM, from *polemos*, war; and thereby hangs a tale for which reference must be made to Pliny. N.O., *Polemoniaceæ*. LINNÆAN: 5, *Pentandria;* 1, *Monogynia*.—For characters of the order see under "Phlox," synopsis, Second Series, page ix.

LAMIUM, from *laimos*, the throat, the form of the corolla suggesting the name, as the "lips" suggest the term *labiate*, as generally descriptive. N.O., *Lamiaceæ*. LINNÆAN: 14, *Didynamia;* 1, *Gymnospermia*.—The dead-nettles represent a fragrant family, for amongst the labiates occur the balm, sage, thyme, mint, lavender, marjoram, and other spicy herbs. The features are characteristic: they have square stems, opposite leaves, labiate or two-lipped flowers, a four-lobed ovary, and four stamens, two of which are longer than the others. Not a single poisonous plant is known in the order; many of them are valued for their refreshing and stimulating properties, and have considerable commercial importance in consequence.

BELL-FLOWER, or CAMPANULA.—See under "Campanula," synopsis, First Series, page ix., and the present volume, page ix.

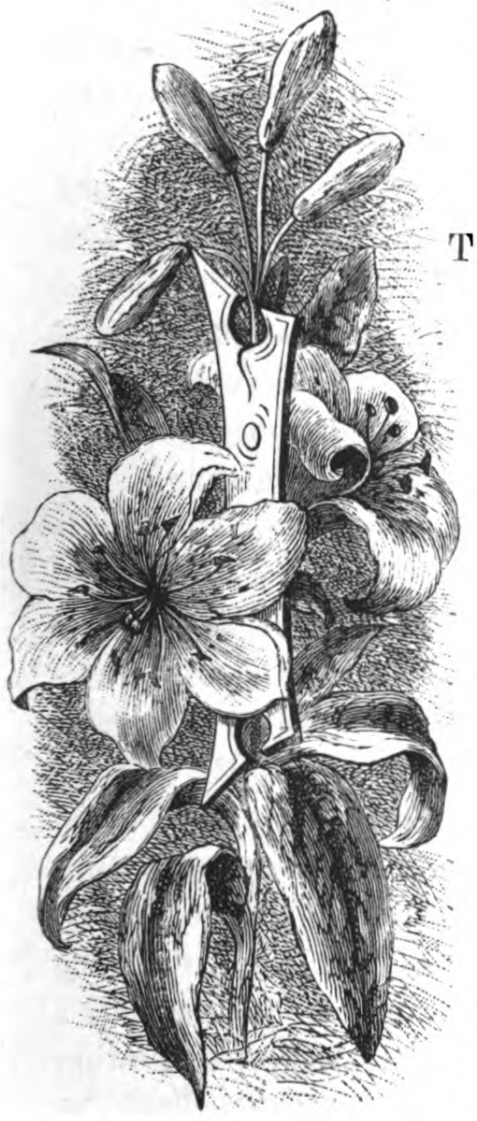
PULMONARIA, from *pulmonarius*, in allusion to the spotted leaf and the ancient uses of the plant in medicine. N.O., *Boraginiaceæ*. LINNÆAN: 5, *Pentandria;* 1, *Monogynia*.—The mention of borage seems to take one into a homely garden, and thence to some homely supper-table. It is, indeed, a most homely plant, and the type of the group to which belongs the pulmonaria. The members of the order are herbs and shrubs with round stems, alternate leaves, and gyrate spikes of flowers, which are four or five divided. The plants of this order come near to labiates, from which they are distinguished by their regular corolla, their five fertile stamens, their round stems, the gyrate inflorescence, and the absence of resinous dots in the foliage. Their properties are also of a different kind, being soft, emollient, and nitrous, borage especially being of a cool flavour, resembling that of the cucumber or burnet. Amongst the members of the order are the alkanet, forget-me-not, lithospernum, comfrey, and omphalodes.

GENTIANA. Named after Gentius, King of Illyria, who first discovered the bitter tonic properties of the gentian root. N.O, *Gentianaceæ*. LINNÆAN: 5, *Pentandria;* 2, *Digynia*.—The members of the order are herbaceous plants, sometimes twining, with opposite or occasionally alternate entire leaves, regular flowers, which are generally five, but sometimes four, six, eight, or ten divided, with two stigmas, and an ovary of two carpels. They inhabit all parts of the world, and their flowers are of all colours. The gentians proper are mostly mountain plants with blue flowers; in other words, they are representatives of polar vegetation, both in the arctic and antarctic regions. The gentian root of commerce is derived from the yellow gentian (*G. lutea*), which is a common plant on the European Alps.

"Sweet is the rose, but grows upon a brere;
Sweet is the junipere, but sharpe his bough;
Sweet is the eglantine, but pricketh nere;
Sweet is the firblome, but his branches rough;
Sweet is the cypress, but his rind is tough;
Sweet is the nut, but bitter is his pill;
Sweet is the bromeflour, but yet sowre enough;
And sweet is moly, but his root is ill.
So every sweet with soure is tempred still,
That maketh it be coveted the more:
For easie things that may be got at will
Most sorts of men doe set but little store.
Why then should I accompt of little paine,
That endlesse pleasure shall unto me gaine?"

ORANGE LILY.

FAMILIAR GARDEN FLOWERS.



ORANGE LILY.

Lilium croceum.

IT is a singular fact that the lilies have attained to the highest degree of popularity, and yet they are amongst the most capricious plants known to our gardens. The glorious golden-rayed lily (*L. auratum*) flowers and dies, and occasionally even dies without flowering. In a few places it thrives "as to the manner born," but, generally speaking, those who will have it in their gardens must from time to time renew their stock by purchasing roots imported from Japan. Even the common white lily (*L. candidum*), which is discoursed on in our first series, though only the commonest of our hardy garden flowers, is eccentric, fickle, and often seriously disappointing; for strong clumps will in one

garden produce not a single flower in a run of ten or more years, while in another garden, with the self-same soil and climate, similar clumps will flower annually in the most delightful manner. One probable cause of the disappointments that occur in the lily garden is the exhaustion of the bulbs through excessive flowering. The disappearance of *L. auratum* is certainly traceable to this cause in some instances; but the ways of the lilies are as yet but imperfectly understood, and the commonest and cheapest are given to vagaries that no one can explain.

As we have before us a very hardy, free-flowering, and useful lily, a few general directions on lily culture may be useful. When lilies are planted out they should have the full sunshine, for the shade of trees is unfavourable both to bloom and longevity. The commoner kinds will bear a certain amount of shade without harm, but it should always be borne in mind that lilies love sunshine.

The lilies may be divided into two groups as regards the soil that suits them: one group needing a loamy, and the other a peaty soil. But they will all thrive—other circumstances being fairly favourable—in a mellow well-drained loam, or in a nourishing fibrous peat. A boggy, sour, poor, or chalky soil will not suit a single lily, whether it be the commonest or the rarest. In preparing for lilies, it is not advisable to use stable manure, except as a top-dressing when the planting is completed, but the cow-shed will supply a suitable fertiliser to dig in and mix with the staple. Far better, however, as an aid in making up a bed for lilies, is a heap of rotted turf, leaves, and other vegetable refuse, forming what is known to gardeners as "leaf-mould." A good soil they must have, but stimulants are likely to do more harm than good, and their free

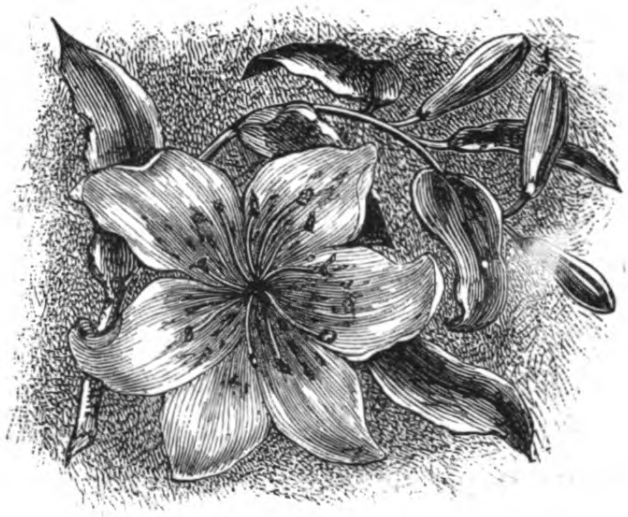
employment in promoting a grand bloom of *Auratum* will often account for the perishing of the bulbs when the bloom is past.

Lilies are often described as needing an abundance of water. As regards those planted out in a deep fertile soil, our opinion is that they do not want any. We have often felt perfectly satisfied that if we could screen our lily beds from rain, and compel the sun to shine upon them from May to August, we should have glorious bloom above and a great increase of bulbs below, and, beyond all doubt, hot dry summers bring the garden lilies to their highest perfection.

The inexperienced amateur is likely to make a fatal mistake in his first venture in lily culture by planting at the wrong season. All beginners have an idea that the spring is the proper season for every kind of garden work, including the planting of lilies. The "proper" time to plant them is as soon as possible after they have flowered. As a rule, therefore, lilies should be planted from July to October, and in every case it would be well to do the work directly the last of the flowers falls from the stem. The florists do their best to keep lily bulbs fresh and plump through the winter for the late-coming customers, but Nature does not alter her ways to accommodate our mistakes. She simply makes us pay for them; and if we will walk in the wrong way, the path before us is soon found to be strewn with stumbling-blocks, but the right way is always easy and pleasant.

The following are the most useful of the cheaper kinds of garden lilies:—*Lilium bulbiferum*, a stout hardy kind, producing brilliant orange-coloured flowers; it will grow almost anywhere, but the best soil for it is a sandy loam.

L. candidum, the common white lily, thrives best in a light deep soil; in a pasty soil its welfare is precarious. *L. chalcedonicum*, better known as the "scarlet martagon," a splendid scarlet lily, thrives in any good soil, but dies away on damp loam or clay. *L. croceum*, the one here figured, very showy and useful, thrives in any soil, but likes good living. *L. testaceum*, a fine species with buff-tinted flowers, thrives on a strong soil, and makes a good feature in a mixed border. *L. tigrinum*, the resplendent tiger lily, thrives anywhere, and increases rapidly.



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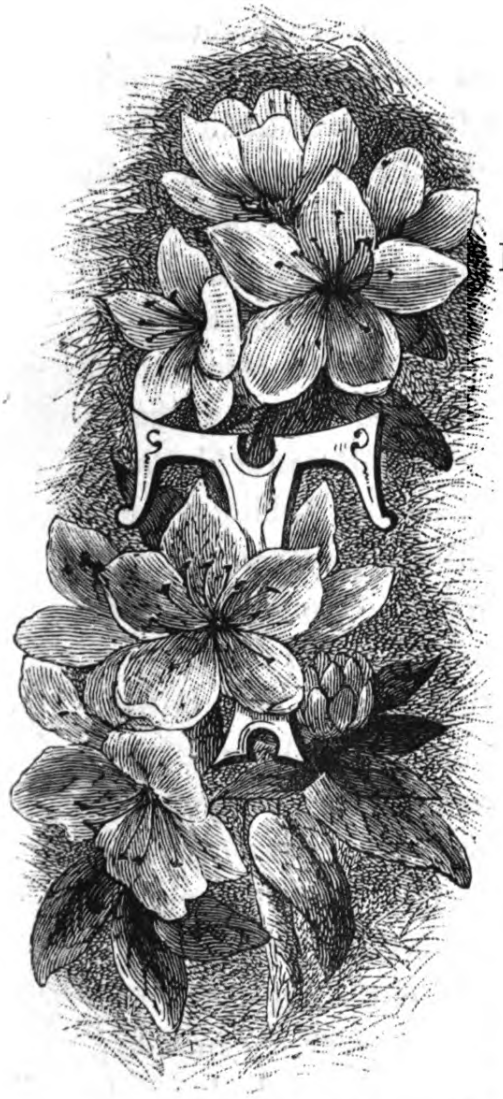
RHODODENDRON.



THE RHODODENDRON.

Rhododendron ponticum.

THE tendency to depreciate the commonplace is very strikingly illustrated in the preference given to rhododendrons of almost any and every kind over this very old and most familiar garden flower. So anxious are raisers and planters to obtain something different to the cheap, hardy, accommodating, and uniformly beautiful Pontic species, that they are always prepared to produce and plant and vindicate varieties that are tender, shy, and of ungainly growth, for the sake of colours to which they are unaccustomed. But when seen in masses, covered with their bountiful bloom in many shades of rosy-purple, these Pontic rhododendrons surpass all others in point of beauty; and they have a certain freshness that is indescribable, but must be felt when the surroundings are in harmony with the rich but soft colouring. One of the best places near London in which to see these plants

in perfection is Cobham Park, near Gravesend; but the London parks can show fine groups, and the nurseries at Bagshot and Woking are renowned throughout the world, not only for the mere growing of rhododendrons, but for the multiplicity of magnificent hybrids that have been obtained by systematic labour long continued. There we shall find them in the opening of the summer gaily dressed with banners of scarlet, crimson, rose, purple, white; with shades of yellow, amber, brown, blue, and even black. And many of the splendid hybrids are as hardy as the more common plant before us; and their beautiful colours and floral characters give a special interest to the magnificent exhibitions that are annually held in the Botanic Gardens, Regent's Park, and elsewhere in places of public resort.

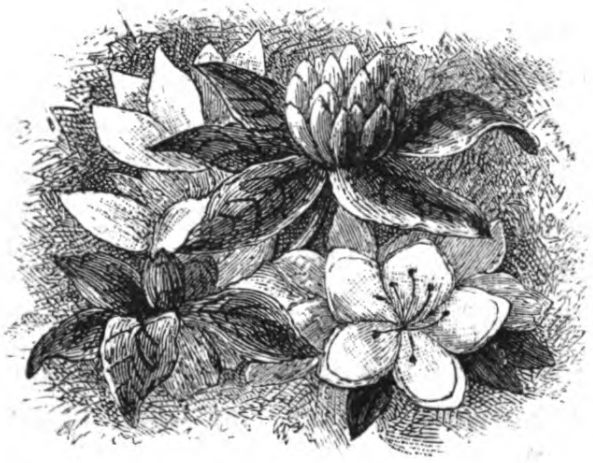
The common purple rhododendron appears to have been introduced to cultivation in this country in the year 1763. It is described in Martyn's edition of "Miller" (1807) as "native of the Levant and Gibraltar; also of Georgia, in the southern sub-Alpine tracts of Caucasus, and where it affects wet places in beech and alder coppices, on rocky mountains, but not on high Alps." In Aiton's "Hortus Kewensis" (1811) there are three references to technical descriptions of the plant, and one of them carries us to the only authentic figure we have succeeded in finding; for this being a very "common" plant, the picture-makers are quite unable to look up to it. The figure is in the *Botanical Magazine*, *t.* 650 (1803), and, though truthful and sufficient, is a far inferior figure to the one now before the reader. This is to be explained by the fact that a good garden variety has been selected for the present purpose; and our specimen is characterised by broad petals and a great depth of colour.

It will occur to the reader to ask whether this plant is to be taken note of in connection with the poisonous honey that we have discoursed upon in describing the Pontic azalea? The deleterious honey known to the ancients, and described by Dioscorides and Pliny, and which plays a dramatic part in the grand story of Xenophon, was certainly not a mythic substance. The inhabitants of Georgia were but too familiar with it. In the opinion of the writer, who for many years has been intimately familiar with the greatest plantations of rhododendrons of this country, and of Europe generally, the common purple rhododendron produces honey that is as wholesome as that from the clover, the heather, or any other good bee plant. Indeed, were it otherwise, we should be too frequently and forcibly informed to remain in doubt upon the subject. But in the *Botanical Magazine,* under *t.* 650, occurs a very interesting note, as follows:—"A middling-sized rhododendron, which had been somewhat forced, standing in a very light, airy bow-window facing the north, produced a large drop of very pellucid nectar at the base of the broadest segment of each corolla; as the flower decayed, this drop mostly crystallised. A number of these crystals were collected, five of which weighed a grain. They were very transparent, resembling in appearance and taste the purest white sugar-candy. The same has been observed in some degree, but not to nearly the same extent, on some other trees similarly situated." Many who observe minutely have seen these saccharine tears in flowers, but few have proceeded beyond the casual observation.

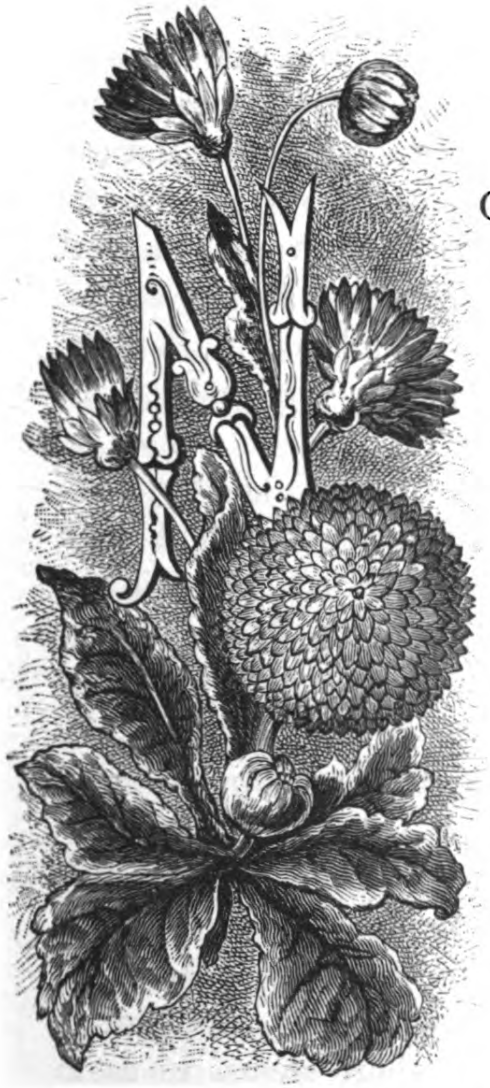
As for Pontus, it is a mysterious geographical entity; and to work out its boundaries will cost some labour, even

to the geographer familiar with the ancient books. But there is a way out of every difficulty. Whoever desires a quick guide to the mysterious Pontus may refer in any modern work to Anatolia.

The Pontic rhododendron will grow in any peaty, sandy, or light loamy soil. It does not thrive in clay or sticky loam, and it will sooner or later perish in a soil containing any notable proportion of calcareous salts. Therefore on limestone and chalk a soil must be prepared for it. In carving a garden out of a wilderness, the old grass turf, sliced off about an inch thick, and chopped over with sharp sand, will make a capital compost for rhododendrons. But where any difficulty arises, the way out of it is to cart in good turfy peat (not bog) soil.



DOUBLE DAISY.



DOUBLE DAISY.

Bellis perennis flore pleno.

ONE of our familiar garden flowers exemplifies more pleasingly than the daisy the ready compliance of nature with the requirements of art. As the field daisy appears mingled with the rough herbage that is already forward for the scythe, it is wanting in the characters that constitute a proper garden favourite. It is beautiful indeed, with its pink-tipped buds, and its silvery rays and golden disc; but in that simple form it fails to satisfy the taste that would adopt it as a domestic flower. And so the florists have improved it; or, if the term "improved" is objected to, we will say they have modified it in accordance with their notions of the necessary properties of a garden daisy. The yellow disc has been abolished; the flower is enlarged to twice or thrice the size of the original; the form is that of a hemispherical cushion, consisting of closely-set florets, the

colour white, rose, red, crimson, or purple. Moreover, the substance of the flower has been so much augmented that when removed from the plant it will, with but little care, continue fresh and beautiful for several days, while the wild daisy would, as a cut flower, be unattractive in the first instance, and would perish almost immediately after removal. The flower-garden affords opportunity for many studies of the influence of man over the forms of nature, but we shall find few examples so striking as the one before us, and none that surpasses it in directness of appeal to the ordinary vision. It needs no philosopher to see the difference between a single and a double daisy, but the conversion of the one into the other may very properly fill the mind with surprise and delight.

There are in our gardens many double daisies of remarkably fine quality, and they are singularly useful when planted out in open breezy places, more especially in the northern counties. In a town garden they do not display their characters in a satisfactory manner; they become "weedy," and very often the roots are destroyed by ground vermin. But in a country garden, more especially on a sandy soil, and in a situation exposed to keen winds, these double daisies are, in their way, invaluable. They may be planted to form solid masses of colour, and they will flower continuously from March to August, the growth being exceedingly neat, the flowers large and brilliant, and borne on short stems, so as to sit, as it were, on the green bed formed for them by the small leaves. Where the soil is heavy, and there are walls and trees near at hand, they produce large leaves, and the flowers rise on tall stems, and a month or so is the utmost time of their continuance; and, at their

best, they are but apologies for daisies, as compared with the rich and perfect bloom that may be seen in many a well-managed breezy country garden.

The variety figured for the present purpose is known in gardens as *Rob Roy*. It originated in the north, and fairly represents the class of double daisies that are now in favour as hardy bedding and border plants. There are at least a score of varieties differing in colour, and the equal of Rob Roy in quality. It may be well to name *Snowflake*, white; *Eliza*, purple; *Crown*, mottled; *Rubens*, red; and *Conspicua*, rose, as constituting a pretty and useful collection for planting a group of beds or to dot the common border with lively flowers. There are some curious daisies worthy of attention, such as the "hen and chickens," in which a full-sized flower is surrounded by a number of smaller ones. This was known to the old florists as "Jackanapes on horseback." But more useful than this is the aucuba-leaved variety, catalogued as *Aucubæfolia*, the leaves of which are richly blotched and veined with yellow on a ground of lively green, and the flowers rich deep red or pure white. This needs pure air and a sandy soil to keep its place in the garden, and where it thrives it increases rapidly, and is exquisitely beautiful.

The Continental florists have given more attention to the daisy than any of our compatriots. The late Louis Van Houtte, of Ghent, was particularly partial to the flower, and encouraged the production of new varieties, his catalogue, twenty years since, enumerating over twenty sorts. Many of these have become established in the English nurseries, and are obtainable at prices so low that a country garden may be made glorious with daisies for a very trifling outlay. Town florists who have a fancy for

these flowers would do well to obtain a few of the best sorts, and give them a fair trial during one whole year. If then satisfied with them, they may purchase and plant freely, and be well rewarded for their pains.

Double daisies may be raised from purchased seed with very little trouble. We have obtained from cheap shop seed some very good flowers, with, as might be expected, a proportion of poor weedy things that were not worth keeping. The best way to raise seedlings is to sow in pans early in the spring, and when the plants are large enough they should be planted in the most open situation that can be found for them.

SPANISH IRIS.

SPANISH IRIS.

Iris Xiphium.

HERE are two species of iris so nearly alike both in name and nature that beginners are apt to consider them as one and the same. One is called the English iris (*I. Xiphioides*), the other is the Spanish iris (*I. Xiphium*). Both are natives of the Peninsula. They belong to Spain, Portugal, and the Pyrenees, and by the men of science are regarded as scarcely specifically distinct. But in a work of this kind we must not enter into scientific questions except in a very superficial way, and it must suffice us to show, not how these two so-called species spring, as it were, from one root, but how they may be distinguished by the amateur who desires to derive from his garden some useful knowledge.

The Spanish iris flowers earlier than the English, and is the taller of the two, and the more fragrant. The Spanish iris produces a smaller flower than the English.

The Spanish iris usually produces two to three flowers on a stem, and the English iris is usually one-flowered; but they both vary in this respect, and the number of flowers on a stem is no trustworthy criterion for distinguishing the species. The natural colour of the Spanish iris is azure-blue, but there are many varieties in which shades of yellow and chestnut appear. The English iris is sky-blue, with darker shades and a bold yellow spot on the external divisions. As regards their requirements and mode of growth and flowering there is no difference whatever. Where the one sort thrives, there also will the other, and they make very pretty beds and border groups. As bedding-plants, however, they are of small value, because their beauty so soon passes away.

To grow these beautiful flowers in a satisfactory manner, they should have a deep sandy soil, not of a dry starving nature, and not swampy or boggy. As border flowers both these sections of the iris family are worthy of attention, as the colours they lend to a collection of hardy plants differ much from such as commonly prevail in their season of flowering, and they are interesting flowers for observation in detail. One advantage in using these as border flowers rather than as bedders is that when the clumps die out, as they are apt to do, they are scarcely missed, whereas it is a great vexation, when beds have been well furnished and are expected to improve, to find them marred by gaps or weak places where they ought, according to the ordinary run of experiences, to be at their very best. On warm, dry, sandy soils perhaps the losses we have become familiar with do not occur. It has been our lot to be compelled to prepare soils especially for plants of this class, by carting in material, and mixing

with our heavy staple; and no one accustomed to horticultural practice needs to be told that a made soil never answers its intended purpose like a soil naturally adapted for the same purpose, and which the making process is intended to imitate. However, in beds of sandy loam on a clay foundation we have grown all the more delicate kinds of iris with success fully remunerative, but we have had to endure the occurrence of occasional gaps in the plantations.

Amongst our pets for this special culture we must enumerate *Iris reticulata, I. amœna, I. cristata, I. iberica, I. juncea, I. nudicaulis, I. pumila.* As for the last, on heavy clay land at Hermitage, some half-dozen varieties prospered so well without any particular aid whatever that we are disposed to recommend this dwarf "Crimean iris" for any soil.

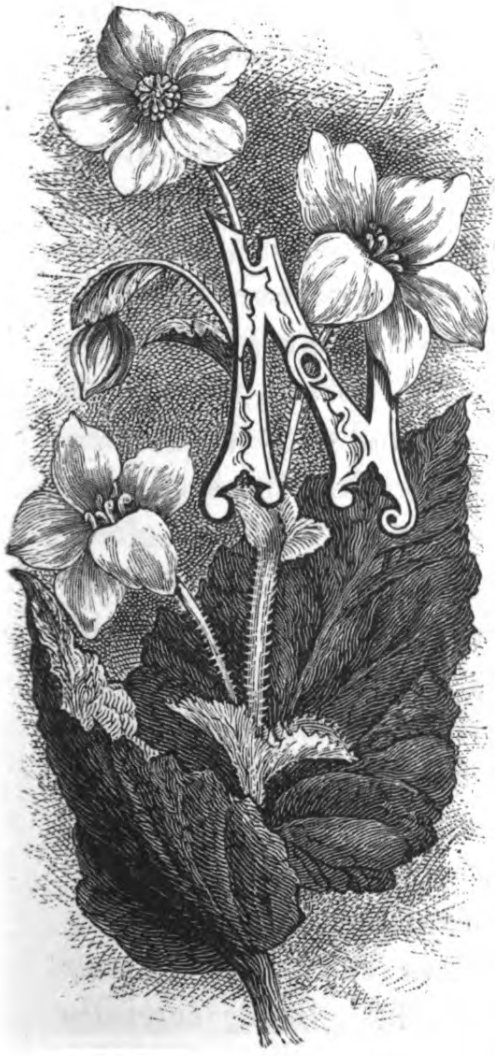
According to the legend, Iris was a messenger of Juno, who transformed her into the rainbow. But she lives in this flower, which has some rainbow colours, and in every eye that can distinguish between blue, and brown, and russet, and ruby.

The strong growing and useful German iris, or "common flag" of the gardens, is a grand plant when grown in collections, as the varieties are strangely and beautifully coloured. And as regards colour, the deep blue of the common flag is in its way unique. But the iris of the florists is *Iris Kæmpferi,* otherwise known as *I. lævigata.* This is a native of Japan. It is of dwarf robust growth, and produces magnificent flowers in every variety of colour-tones, blue predominating. Some trouble has been experienced in the cultivation of this resplendent flower, and it may be of service to the reader if we give some

brief practical directions. In the first place, then, it should be borne in mind that Kæmpfer's iris requires a very moist soil in the growing season; it is, indeed, somewhat of a marsh plant. It follows that, in preparing a bed for it in any position that is not naturally very damp, the bed should be somewhat below the general level, so as to retain much of the summer rain, as also of water given by manual labour. Another point of importance is to plant in a rich deep loamy soil, and to lay on the bed a few inches of fat manure.

In addition there are two noble species worthy the attention of those who value really choice plants. They are *Iris iberica* (already mentioned) and *Iris susiana*. They produce very large and singularly marked flowers, wanting perhaps in what superficial observers call beauty, but truly beautiful and somewhat remarkable for all that. These noble species are hardy in the more favoured parts of the south and west, but in the neighbourhood of London they require to be grown in a frame or greenhouse.

WHITE BEGONIA.



WHITE BEGONIA.

Begonia Mont Blanc.

ONE of the newer kinds of garden flowers have higher claims on the attention of amateurs than the tuberous begonias. The hybrid clematis may rank equal in importance, and certainly should not be ranked far below them. The begonias are so nearly hardy, so easily grown, whether as specimens for the conservatory or as useful flowering plants for the summer garden, and are withal so various and beautiful, that the lovers of gardens may be well advised to take them in hand with earnestness, and to add to their number by the systematic raising of seedlings.

It is not necessary to grow these plants from seed, because the named varieties are low-priced and easily obtainable. But there is great interest attaching to the raising of seedlings, and we shall advise as to the procedure. If a collection of the finest kinds are flowered in a light airy conservatory, there will be abundance of

seed produced. It will be advisable to fertilise the female flowers—which are easily distinguished by the incipient seed-pod at the base—with pollen taken from male flowers differing from them in colour. The seed-pods should be pinched off before the seeds begin to scatter, and being laid loosely in a clean box or glass dish, will soon ripen, and none of the seed will be lost. The seed is as fine as snuff, and in sowing it care should be taken not to cover it with soil at all. Prepare some shallow boxes or pans, with about three inches of light rich soil—say turfy loam, clean leaf-mould, and very old rotten hotbed manure in equal parts. Having sprinkled some sand over the surface and pressed it flat with a board, sprinkle the seed very thinly, and then cover with a sheet of common glass. The soil ought to be moist enough to need no watering until the plants are up, but should water be needed, the boxes or pans must be immersed nearly to the top edge for an hour or two, and should then be removed. In a warm greenhouse or pit the seed will soon germinate, and the seed-boxes will present the pleasing appearance of hundreds of young begonias.

The best time for sowing the seed is during February and March, as the young plants have the whole summer before them to complete their growth. Being carefully pricked out into other pans or boxes, and as soon as large enough separately potted, they will grow rapidly, and the whole of them will flower before the season is past. As they flower those of no merit should be destroyed; the best of them should be named or numbered; and a few plants may be struck from cuttings of any decidedly good ones that flower early.

The result of a season's growth will be the formation of

tuberous roots, and the best way to keep these is in the pots without disturbing them. If nearly, but not quite, dust-dry, and guarded from frost, they will be perfectly safe through the winter. In the month of February they should be shaken out and planted in shallow boxes filled with a similar soil to that recommended for the seeds. It is a matter of importance never to put them in pots or boxes containing more than two or three inches of soil in the first instance, for in a deep soil they are apt to rot; but in a shallow soil they are sure to grow, the temperature of a warm greenhouse being sufficient for the purpose. A moderate amount of care will insure a fine lot of plants by the end of May, when they should be very carefully "hardened" in frames to prepare them for planting out. About the second week in June is, generally speaking, the best time to put them out in beds; but in the southern and western counties they may be put out at the end of May, and provided they are not punished by frost, it may be said the sooner they are planted the better. They will flower superbly, and in all adverse seasons it will be found that these frail, succulent, and comparatively tender plants endure wind and rain with less harm than any other bedders. In a dry hot season they must have plenty of water, but in an average season they will need but little or none.

The following varieties for summer flowering constitute a fine collection:—Mont Blanc, Coral Rose, Countess of Kingston, J. H. Laing, Lady Hume Campbell, Lemoinei, Trocadéro, Mrs. Laing, Louis Thibaut, General Roberts, White Queen, Laing's Superba.

To produce fine specimens some strong plants should be dried off and rested as soon as convenient, without

imposing any check. At the turn of the year these should be shaken out and re-potted in fresh soil in smallish pots, and put into a temperature of 50° to encourage growth. When inclined to move, the heat should be increased to 60°, and after a time to 70°, but beyond that it will not be safe to increase the temperature. When the plants so treated have filled their pots with roots they should be shifted to the next size, and be again and again shifted as needful, but never until the pots are filled with roots, and never beyond a reasonable size of pot. If the shifting into larger and larger pots is carried too far, there will be immense growth but no flowers, therefore you may reasonably stop when the plants are in 8-inch or 10-inch pots. Then let them flower, and you will be well rewarded. As a matter of course they must be kept neatly staked, and flowers that appear before the plants have attained to a suitable size must be pinched out. A compost consisting of loam, leaf-mould, and very old manure from a hotbed is the best for them; rank or fresh manure is objectionable, and liquid manure should be given occasionally.

TURBINATE BELL-FLOWER.

TURBINATE BELL-FLOWER.

Campanula turbinata.

THIS pretty bell-flower illustrates in a pleasing manner the prevailing difference between the flowers of the mountain and those of the plain. The rambling botanist of large experience can tell us in a moment the kind of country whence a plant has been derived, even if he cannot name the country or the plant off-hand. When he finds the leaves small and in a compact tuft, and the flowers large and somewhat prominently displayed, he will declare it to be a plant of the mountains, accustomed to a strong light, and to frost and snow and keen breezes. The plants of the valley are by comparison large and leafy, with flowers less conspicuous; and however beautiful, as many of them are, they lack the tufty, closely-packed, pin-cushion growth and brilliant colours of the true mountain flowers. This bell-

flower may be compared with the average of garden campanulas advantageously for purposes of instruction. We find no tall stem, no free, leafy growth, and no drawn-out spike of flowers. The whole thing is, as one may say, in a nutshell, for the mountain plant cannot afford to make a tall stem and to develop its flowers slowly. Its conditions of life are unfavourable to the development of abundant material; it must make the very most of a short summer with a pure, strong light, and many sudden transitions from extreme heat to extreme cold. The sunshine roasts one at midday in many a flowery spot on the Alps and the Pyrenees; and yet, in the very height of the summer, the night frost is often keen enough to make the herbage crackle beneath the feet of the late wanderer, as also of the early riser. The Alpine flowers have to live through such extreme conditions; and if they do not ripen their seeds and scatter them quickly their race must soon come to an end. Therefore they have not time to grow tall and leafy and luxurious; they hug down close to the ground to escape the keen wind, and concentrated life is of more importance to them than a luxurious display of delicate green garments.

The turbinate campanula is a native of the Carpathian mountains and Transylvania, and when transferred to the garden is essentially a rock plant, requiring a dry, sunny position, and a light, deep, well-drained soil. It is at once beautiful and interesting, the smallness of the leaves and the largeness of the flowers rendering it conspicuous, while the fine blue-purple colour and bold cup-shaped form of the flowers compel attention in detail. It may be grown in the common border where the conditions are favourable, the soil being sandy and the situation open, when it forms

large leafy tufts, from which the flowers rise freely during the summer.

As rock plants the smaller campanulas have especial claims on our attention. The following will gratify the collector of such things:—*C. alpina,* a silky or woolly little herb, bearing a loose pyramid of deep blue flowers. *C. cæspitosa,* very dwarf and tufty, the flowers deep blue. *C. carpatica,* a very fine rock and border plant, well known for its neat cushion-like growth and lovely flowers, which are blue or white, or combining both colours; this will thrive in almost any border, and in the very heart of London. *C. garganica,* somewhat like the last, but more inclined to run, and the flowers are expanded, and have white centres. *C. hederacea,* an exquisite gem, creeping, with small, ivy-like leaves and bluish-purple flowers; a bog plant, very plentiful in the southern counties on marshy, uncultivated lands, the companion commonly of the beautiful buck-bean (*Menyanthes trifoliata*). *C. isophylla,* a handsome dwarf plant with pale blue flowers; it requires a limestone soil, and is a good plant for a wall or ruin. *C. Raineri,* very dwarf and pretty, the flowers blue, the plant adapted for either rockery or border in well-drained sandy soil. *C. rotundifolia,* the well-known "hare-bell" of the hedgerow and the mountain. It is a good garden plant adapted for rockery or border in any light soil, and there are three or four distinct varieties in cultivation. Once upon a time, when botanising at Hayfield, under Kinder Scout, we found within an hour fully a score of distinct varieties of the common hare-bell, the flowers being of several shades of blue, pink, and white; and doubtless they are to be found there still by any diligent seeker in the summer-time.

Having campanulas in general for a moment before us, we must embrace the opportunity to mention two very fine species, which are usually ranged in the genus *Platycodon*. Number one is *Campanula* (or *Platycodon*) *autumnalis*, a handsome perennial plant, rising a foot and a half high, bearing in the autumn bold panicles of brilliant blue, white, lilac, and dove-coloured flowers — for there are several varieties, and some of them are double. The other is *Campanula* (or *Platycodon*) *grandiflora*, a more robust plant than the last, and bearing larger flowers earlier in the season, although they often flower together in the late summer months. This produces very large glossy flowers that are exceedingly beautiful. These are raised from seed or by division of the roots. They are scarcely hardy in London, but in the southern counties may be planted out in any good border, and will take care of themselves. We have always grown them in pots, as companion plants to the noble chimney campanula (*C. pyramidalis*), and have been well rewarded for the trouble.

RANUNCULUS.

THE RANUNCULUS.

Ranunculus Asiaticus.

FASHION may be allied to folly, but it is often the concrete expression of inevitable circumstances. Flowers become fashionable, and after a time they become unfashionable, and in certain particular cases that have been inquired into it was discovered that the determining cause was not to be found in man so much as in nature. When for several years in succession certain flowers have, through unfavourable weather, failed to reward their cultivators and admirers, those same flowers have gone out of fashion, although what we properly understand as fashion had little or nothing to do with it. The hollyhock has of late years been out of fashion, owing to the prevalence of a destructive fungus which first disfigures the plant and finally destroys it. The

grand double dahlias have been out of fashion, owing to a series of cold summers; but in the year 1881, when it was thought the single dahlias were alone worthy of attention, the grand old double flowers came forth in such splendour that at one of the exhibitions where myriads of the single flowers were on view, very few persons saw them because of the superior attractions of the older and nobler varieties that had acquired historic renown as the most resplendent of all the autumnal flowers.

It must be confessed that the ranunculus is at the present time not a fashionable flower, for in truth it is comparatively unknown in its proper character to the race of modern florists. But its day may come again, and when it is once more seen in a state of high development as a familiar garden flower, people will ask how it could happen that such a "gem of purest ray serene" could lose its hold upon popular affection through a whole series of years. And the question is worth asking now, for there is no flower known to cultivators that so completely satisfies the requirements of the floral canons as the ranunculus. The dahlia may rank next to it in respect of technical merit, but the refinement of the ranunculus is unique, and its range of variety almost boundless; and it needs no costly appliances for its most perfect cultivation.

This flower was cultivated in the East for centuries before it became known in Northern Europe. The Dutch first became possessed of it; from them, in the time of Queen Elizabeth, our florists obtained it; and thus it was known just in time to have a proper place in the works of Turner and Gerarde and Parkinson. The

British growers soon outsped the Dutchmen in the production of fine varieties, as they have done also in the case of the anemone, tulip, and other famous flowers for which they have been indebted to Holland in the first instance. Fifty years ago there were in cultivation fully a thousand named varieties; indeed, Maddock catalogued eight hundred. Twenty years ago the fullest catalogue current contained only three hundred, and at the present time when we meet with a trade list it comprises a few dozen only, or perhaps less than a score.

But as there are as good fish in the sea as ever came out of it, so the amateur who will labour earnestly in raising seedling ranunculuses may soon become possessed of a race of first-class flowers, answering in "properties" to the severest requirements of the florists. The seed should be sown in January, in boxes of sweet loamy soil without manure, and the boxes should be kept in a frame or a cool greenhouse. The plants should appear in about six weeks. They require only ordinary attention as regards watering and so forth, but they will not endure neglect, and it is of great importance to let them have plenty of air and light from the first, to insure perfect hardiness. When the leaves die down in July, the bulbs are to be sifted out and stored away in dry sand.

The roots (or tubers), whether purchased or raised from seed, should be planted out in November in gardens that are well drained and remote from towns; but where the soil is damp or there is much coal-smoke, it is best not to plant them out until February, so that there shall be no growth above ground until the spring is somewhat advanced. A deep loam suits the flower better than any other soil, and the roots should be planted only two

inches deep; and as regards distance it is a good rule to put them five inches apart each way, and of course alternating throughout the bed. For display irrespective of high quality, the cheap turban ranunculuses are invaluable, and as hardy as any choice flowers known to our gardens.

It is a matter of considerable importance that the Asiatic ranunculus, in all its many varieties, comes so nearly true from seed that to reproduce the finest sorts quickly and in quantity is altogether an easy matter. It must always be borne in mind, however, that the plant is somewhat peculiar in constitution. It needs a deep strong soil, and the bed should be mulched in spring with fat manure. Drought is death to it, and therefore during dry hot weather the water-pot must be used freely. And, finally, the roots require a season of decided rest. Both the seed and the roots possess an enduring vitality, and may be kept two years without detriment. But we do not advise putting any plant to such a strain; it is sufficient to know what is possible in the case of an emergency.

WINTER HEATH.

WINTER HEATH.

Erica hyemalis superba.

ERICAS are less in fashion than they were forty or fifty years ago, for then they were to be seen in every garden that could boast of a glasshouse and a careful gardener. Plants that make more show and give less trouble have superseded them to a very great extent. This may be matter for regret, but it is easier to make mistakes in such matters than to hit upon a true view of philosophical vexation. The one before us, however, does not count as an erica in the highest sense of the florist; it is a "market flower," a "table flower," a flower for everybody, and therefore it is never seen in an exhibition, and nobody raves about it.

There are three lovely heaths that find favour with the clever cultivators who supply the markets with winter flowers. They are *Erica hyemalis*, the best variety of which, named *superba*, has been selected for the illustration;

E. Wilmoreana, which is much like it, but of a more herbaceous character, and produces larger flowers; and *E. gracilis*, the tiny flowers of which are produced in light clusters, the colour clear carmine-tinted rose, or rose-tinted purple. These three are the most familiar, because the most useful, of the winter-flowering heaths; they are to be seen everywhere, but nobody has a word to say for them, because they are "common."

Amateurs with a fancy for first-class plant growing may be advised to take these in hand for preliminary lessons in the management of heaths in general. That it requires some skill to manage even these cheap things is made evident by the fate which befalls about ninety-nine of every hundred plants sold in the market. It is not needful to pronounce the word. Let us deal with the hundredth plant that escapes the common doom, and having kept it alive, let us learn to flower it again and again, and to promote its growth to fine proportions.

Inexperienced persons who purchase these plants are apt to imagine that periodical watering should suffice to keep them alive for ever. But it does not suffice, as the facts eventually prove. One of the most important points in the management of all such plants is to re-pot them annually, so that every year they have the advantage of fresh soil to grow in. The treatment of one will be the same as for a hundred, and we will take one and briefly describe the routine of cultivation. It has flowered and is in perfect health, and will not flower again for a whole year. We must have ready a little turfy peat, of a brownish colour, and this must be chopped or torn up and mixed with about one-fourth of its bulk of silver sand or any sharp pit sand that is handy. Turn the plant out of the

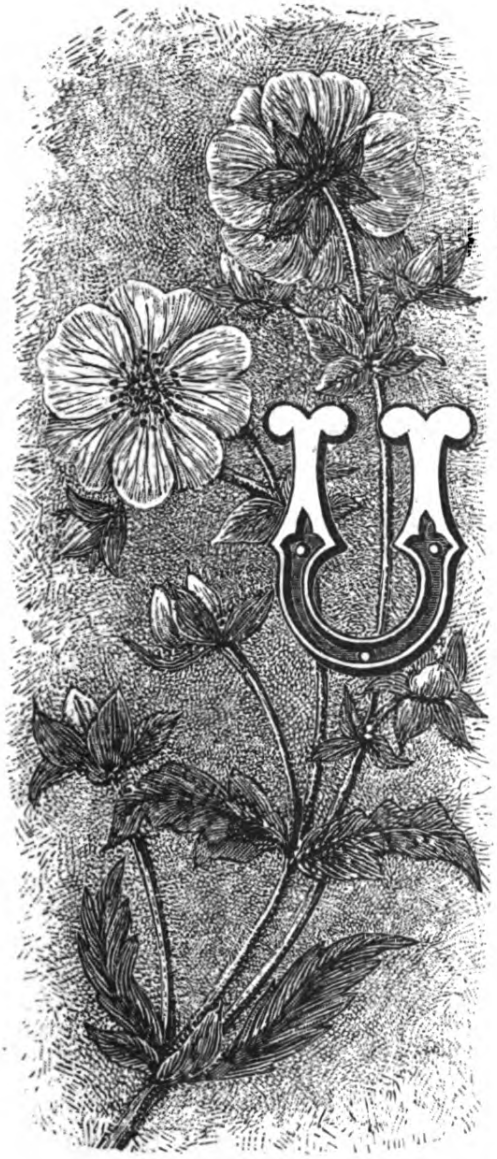
pot and hold it head downwards, and remove the crocks and some of the old soil, but do not strip the roots or attempt to shake the ball to pieces. When you have had some experience you may shake all the soil off; but in a first effort it will be best not to attempt such radical practice. Now take a clean pot of the same size as that from which the plant was removed, or the selfsame pot may be used if it is washed first. In the bottom of this lay a few pieces of broken pot, hollow side downwards. On these crocks sprinkle a few bits of turfy peat; then put the plant in the pot and fill in round it with the fresh soil, pressing it in with the thumb of each hand somewhat firmly, and put a light sprinkle of the fine stuff over all to make a finish.

Keep the plant in the greenhouse and give it very little water until it begins to grow freely. This will bring us, say, to the end of May. Then take a clean pot one size larger, turn out the plant again, remove the crocks, but do not remove any soil, and pack it nicely into the larger pot with a further supply of the fresh peaty mixture. In about three weeks after this put it out in the open air in a frame, and let it be fully exposed to sun and weather until the end of September, and then put it in the greenhouse, and the work of the season will be completed. The date of flowering will depend very much upon the temperature of the house and the nature of the season. But it will be well to remember that although the greenhouse heaths will not endure frost, they may very soon be killed by excess of artificial heat.

Having thus acquired a lesson in the cultivation of heaths, we may proceed to enlarge our practice by taking in hand a nice little collection. It is of importance to

secure a nice nut-coloured fibrous heath soil. For the free growers about one-sixth of silver sand should be mixed with the peat, and for the slow growers about one-fourth. The plants must be re-potted annually until they acquire considerable size, when it may be advised to keep some of them in their pots two years, but refreshed by renewal of the top soil. Any excess of moisture is injurious to heaths; on the other hand, if kept too dry they will become rusty and cast their leaves. The proper place for a collection is an airy span roof house, where they should always be freely ventilated, and have only as much artificial heat as will keep them safe against frost. During July and August it is advisable to keep them out of doors, so placed that worms cannot enter the pots and the mid-day sun cannot scorch them. Indeed, all extremes of heat and cold and drought and humidity must be carefully avoided. The best free-growing kinds for a beginner are *Bowieana, Cruenta, Exsurgens, Flammea, Refulgens, Wilmoreana, Intermedia, Bergiana, Gracilis, Grandissima, Hyemalis, Linneana, Pyramidalis,* and *Sulphurea.*

CRIMSON AVENS.



THE RED AVENS.

Geum sylvaticum.

UNDER the name *Geum coccineum*, at page 37 of the Second Series, is figured the scarlet avens of Chili, which Sweet, in his "British Flower Garden," labelled *Geum quellyon*, and which is otherwise known as *G. Chiloense*. The plant now figured bears the name (apparently without any sufficient authority) of *Geum sylvaticum*, under which appellation it is ranked here, to separate it, as a garden plant, from the other, of which it is in truth a mere variety, though one of great beauty. It differs in this more particularly that *G. coccineum* has the upper joint of the style glabrous, while in the *G. sylvaticum* it is hispid. As a garden plant, therefore, it may with propriety be labelled *G. coccineum*, and will be found as valuable for the rockery as the more typical form to which reference has been made.

A very fine mountain avens has been lately introduced to public notice in the *Botanical Magazine*. It is a native of the Himalaya Mountains, and bears the name *Geum elatum*. In general character it approaches the beautiful *Geum montanum*, but is far more robust in growth, with very bold, much-cut leaves, and large handsome flowers of a full rich gold-yellow colour. There are many species of geum distributed about the mountains of Europe, Northern Asia, and Northern America, one of them, *G. Rossi*, running very far north, so as to form a feature of Arctic vegetation. The best known of the American species are *G. triflorum*, the three-flowered avens, and *G. Pecki*. On the Alps of Europe a handsome yellow avens, known as *G. reptans*, occurs, and is characterised by all the proper characters of an Alpine plant—a close growth, and large handsome flowers. Returning to the Himalaya, it is proper to observe that the robust *G. elatum* is, in the colder regions of Sikkim, replaced by a dwarf species, called *G. humile*, which ranks with *G. reptans* in its strikingly Alpine character.

This avens, and the scarlet variety referred to above, are particularly valuable as garden flowers by reason of their earliness and their long continuance in flowering. And there is yet a third variety, named *Geum coccineum flore pleno*, with semi-double flowers of a most showy character, but which, nevertheless, in common with the single forms, produces an abundance of seed. If sown as soon as ripe, the seedling plants acquire considerable strength before winter assails them, and flower bravely in the following season. But the seed may be kept over to the spring, and being then sown, there will be a grand bloom in the year following. Treated as biennials, these geums are of great

value, and seedling plants should be raised annually to insure a vigorous stock and an abundance of splendid flowers.

In the avens we have an example of a plant that may be said to have modified its character in a variety of ways to adapt itself to the varying conditions of a weed of the world. It is not in this respect unique, for very many examples of a similar modification may be found in every garden, especially where hardy European plants are largely represented. The lowland forms of such genera are leafy and liberal in growth, and their flowers are often diminutive as compared with the size of the plant producing them. On the other hand, the mountain forms are of dwarf growth with smallish leaves, while the flowers are of very large size as compared with the plants, and may be said to be borne boastingly above them, as if to attract the wild bee or butterfly that has dared to sail so high, and that may be starved unless favoured with a special invitation, by banners bravely coloured, to visit the hospitable board. And while the tiny winged creatures are thus attracted to a banquet in the midst of the rocky waste, the flower has the advantage of their visits, as all generous hosts should be benefited in some way by the company they entertain. In searching for the honey in the nectary of the flower, the winged visitor brushes the pollen from the stamens, and some of it adheres to his legs or wings: then when he visits the next flower of the same kind the ripe pollen is deposited where it is wanted, the purpose of the plant is served, and it quickly ripens its seeds and scatters them abroad ere the short sunny Alpine summer has died away.

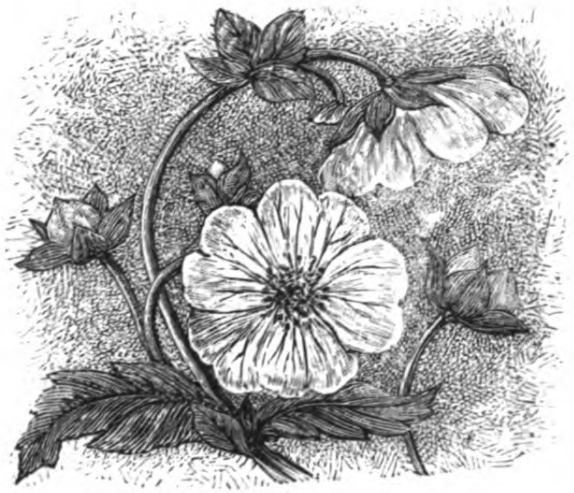
We talk lightly sometimes of "local colour" in works of art, knowing that no scene can be painted or described

with suitable effect except by one who has obtained impressions at first hand on the spot by actual observation. A striking example of this occurs where, perhaps, one might least expect it, in Coleridge's noble "Hymn before Sunrise," wherein the peculiar characteristics of Alpine vegetation are made to contribute to the sublime force of the argument. The poet had in mind the gentian more particularly; but it matters not what flowers were in his thoughts when he wrote thus :—

"Ye ice-falls, ye that from the mountain's brow
Adown enormous ravines slope amain—
Who bade the sun
Clothe you with rainbows? Who with living flowers
Of loveliest blue spread garlands at your feet?

God! let the torrents, like a shout of nations,
Answer! and let the ice-plains echo, God!
God! sing, ye meadow-streams, with gladsome voice!
Ye pine-groves, with your soft and soul-like sounds!
And they too have a voice, yon piles of snow,
And in their perilous fall shall thunder, God!

Ye living flowers that skirt the eternal frost,
Ye wild goats sporting round the eagle's nest,
Ye eagles, playmates of the mountain storm,
Ye lightnings, the dread arrows of the clouds,
Ye signs and wonders of the elements,
Utter forth, God! and fill the hills with praise."



SPIDER WORT.

THE SPIDER-WORT.

Tradescantia virginica.

IT has many times occurred to us, and perhaps to others, that this plant is unworthy of the name it bears. When we reflect upon the matter, however, we have to endure the conviction that we have gravely erred; and we feel bound to invite those who have shared with us the doubt to share the conviction also. The general tone of the common spider-wort is admirably represented in the accompanying figure, which presents a somewhat weedy plant possessed of exquisite beauty of form and colour. If you object to the word "weedy" you may, if you please, say rustic or æsthetic; still we shall be inclined to call the spider-wort weedy, and the place we assign it is the mixed border, where large tufts of some half-dozen varieties have for many years past delighted us all the summer long. If you should think that a "weedy" plant cannot

delight the eye, you would alter your opinion could you see, as we have often seen, meadows enclosed with stone walls and entirely occupied with the rosy flowers of the ragged robin, which is a weed of weeds, and in its common weedy form unfit for any garden. The "hay fields" between Buxton and Leek are in many instances so richly clothed with ragged robin (*Lychnis flos cuculi*), that the rosy flowers seem to fill the meadows, just as in some parts of Sussex, especially near the coast, the snow-white flowers of the bladder campion (*Lychnis vespertina*) appear to occupy the entire space.

The common spider-wort is perfectly hardy, and is a good London plant, as damp soil and a certain degree of confinement does not in any serious degree impair its beauty. On our heavy clay land it attains to a peculiarly fine growth, and makes amends for the failure of many a good thing for which our clay is not good food. There are about a dozen varieties in cultivation, and they are all worth having for the planting of a mixed border; indeed, the mixed-border man should secure all that are at his command, for in this class of plants minute differences are of importance, and the named varieties are for the most part sufficiently distinct. The flowers are really beautiful, more particularly the white variety, with its stamens delicately dressed with a violet fringe.

The genus is named after John Tradescant, the "mighty Dutchman," who, it appears, was not a Dutchman, although he may have enjoyed regard as such in a day when the Low Countries were looked up to by the students of botany and horticulture. John Tradescant travelled much, and had opportunities of exploring the northern shores of Africa and the islands of the Mediterranean. We catch him

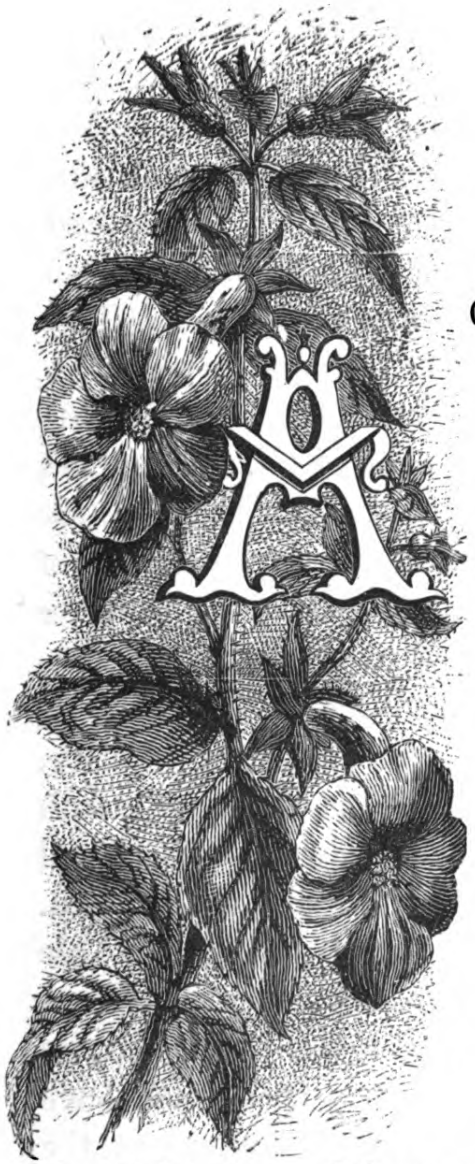
in a comfortable place when we find him appointed gardener to King Charles I., in the year 1629; Tradescant's garden being then in Lambeth, and the king's garden a place of smallest import, for in that year his Majesty dissolved the Parliament and tried the experiment of governing without one. Tradescant's son made a voyage to Virginia, and in returning brought home many strange plants. Thus was formed the nucleus of the curious collection which afterwards was known as "Tradescant's Ark," an account of which was published in the "Museum Tradescantianum," 1656. To this volume were prefixed portraits of the father and son, engraved by Hollar. To the father John, succeeded the son John, who bequeathed the museum to Elias Ashmole, so that it became ultimately a part of the celebrated Ashmolean Museum. In this museum were "two feathers of the phœnix tayle," which of course makes an end of all questions as to the reality of the phœnix. The son died in 1662, and a curious monument in memory of the family was erected by his widow in Lambeth churchyard. An interesting account of the Tradescantian garden was drawn up in 1749 by Sir William Watson, and printed in "Philosophical Transactions," vol. xlvi.

Returning to our plant, we must confess to ignorance of what is termed its "life-history," and on one point our ignorance is now brought home to us. We have never looked for seed on our spider-worts, and we have no recollection of having seen seeds offered for sale, and we really cannot say if it produces seed in this country. However, this is of no great consequence, because the plant can be divided *ad infinitum*, and it is merely a question of time when a stock is required. To enjoy them, indeed, they

should be left alone for several years to form large tufts; but to increase them, it is only necessary to lift them in the spring and divide the roots and plant again. But this must be done with care, and it may sometimes be advisable to plant the pieces in a bed of sandy soil, or even to pot them and give them careful culture for one year, and then plant them out to make handsome specimens. We have spoken of ours as thriving on a heavy soil, but a light sandy soil is much better adapted for this plant, and a spacious rockery is the very best place on which the several varieties will most effectually display their beauties.

The double-flowering spider-wort is preferred by many to the single, because of its rosette-shaped flowers. It is a good thing to supplement but not to supersede the single flowers. It is admirably portrayed in the initial and tail-piece.

ACHIMENES.



THE ACHIMENES.

Achimenes longiflora.

ACHIMENES, Gloxinia, and Gesneria are three floral graces—gifts of the new world to the old, related as a sisterhood of beauty, and requiring almost identical conditions of life to insure their health and to win their smiles. The plant before us is singularly beautiful, and the easiest of the genus for the amateur to cultivate, as a warm greenhouse temperature suffices for it, whereas most other species of achimenes require the heat of the stove. There are several varieties of *longiflora*, but it will suffice to take note of two only—the violet-flowered form now figured, and the white, which is named *alba*. These are fine pot-plants, and those who succeed in cultivating them may be advised to secure also *Gloxinia tubiflora*, which is quite a companion plant, with long-tubed white flowers, which are carried on a long stem far above the rest of the achimenes and gloxinias.

The routine culture of achimenes admits of brief description without omission of any matter of importance. They are of annual growth, and are renewed as required by planting the dormant tubers in pots or pans. The usual time to commence the cultivation is the month of January, but successive supplies should be started later where a continuous display of the flowers is required. The tubers may be put into pans or baskets in a mixture of peat or silky loam, leaf-mould, and sharp sand. They should be planted thickly—say two or three inches apart. Very little water should be given until they are growing freely, and for the first few days none at all. When put into baskets a lining of moss must be provided to keep the soil together, and this should consist for the most part of fibrous peat or loam, which will of itself hold together like moss. A moist heat is required to start the tubers—say 65° by night and 70° by day. Where this cannot be commanded in January a warm greenhouse will suffice, provided the first batch is put into the pans in the month of March, as then the sun-heat is rapidly advancing, and the warmest part of the house may be allotted to them. At all times the atmosphere in which achimenes are grown should be warm and moist, and hence it is customary in many gardens to grow these and gloxinias in an orchid house. As regards water, they must have plenty when in full growth, and, from the time when the bloom buds appear, weak liquid manure should be given them until the flowering is over. Then they must be gradually dried off, and when the leaves have withered, the pots or pans should be stored away with the roots in them undisturbed, and must be kept dry, and in a temperature of 45° to 50° until the time returns to start them

into growth again. Large specimens carefully trained make useful subjects for the exhibition table, as also for the conservatory. They require constant care, and especially careful handling, to insure a complete contour, an abundant bloom, and a dense and healthy leafage.

A very interesting section of this family is that known under the generic designation of *Tydæa*. The tydæas are of robust growth, exceedingly showy, and make very fine specimens. They require the same treatment as the achimenes, and may with advantage be associated with them, for the sake of their stately growth and fiery colours. Of both genera there are many more varieties than are needed in any ordinary establishment, and therefore a selection of the most distinct and generally useful may be of advantage to the reader.

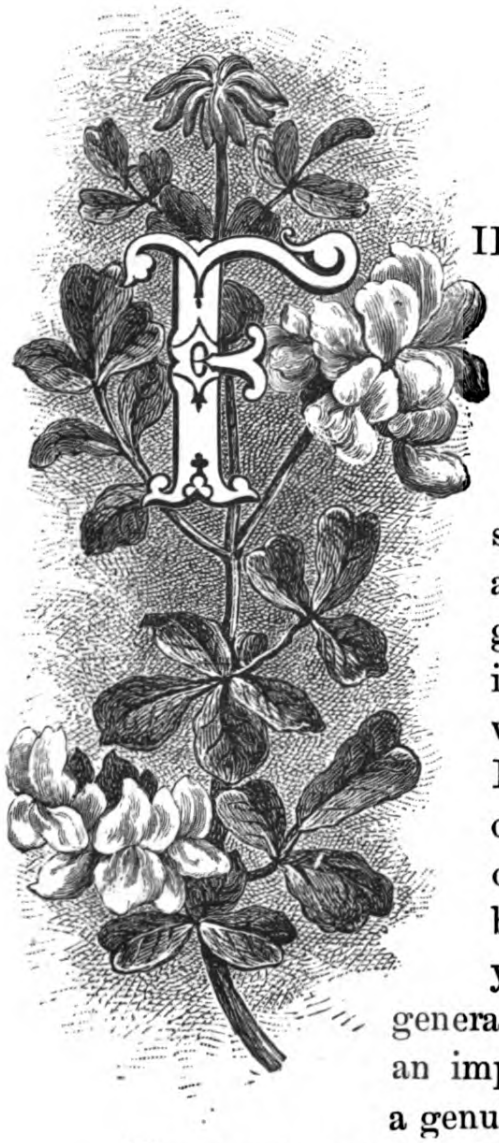
The following achimenes constitute a useful collection:—*Admiration, Ambroise Verschaffelt, Aurora, Diamond, Longiflora, Longiflora alba, Mauve Perfection, Rose Queen, Sir Trehern Thomas.*

The following tydæas will gratify the cultivator:—*Grandis, Amabilis, Sanguinea, Princess Troubetskoy, Ligeria, Mirandoline.*

When grown for exhibition the roots should be started in shallow pans, and when the shoots are two inches long they should be potted in the pots in which they are to flower, the size of which, of course, will be determined by the schedule. Very effective specimens may be made in 10-inch pots. In potting a little mountain of crocks should be put in and carefully packed, and over these some rough lumps of peat or loam should be laid; then fill up with a mixture of turfy loam and leaf-mould, all of the very best quality, with a moderate amount of sand

added. A 10-inch pot will take twelve plants, an 8-inch pot nine or ten. Plant them carefully one inch deep, give them a sprinkle, and put them into a temperature of 70°. When six inches high pinch out the points, and at once stake them very gently. Water freely and syringe overhead. As soon as the flowers begin to appear give weak liquid manure twice a week, and gradually give them more and more air to keep them stout and short and to promote purity of colour.

CORONILLA.



THE CORONILLA.

Coronilla glauca.

FIRST-CLASS window flowers are not so easily found as may be supposed by those who have never had to look for them; but this coronilla is the very type of what a window-plant should be, not only in appearance, but in habit. It is evergreen, and almost always growing. It flowers twice in the year when thoroughly well managed. It may become a "patrician tree" or a "family heirloom." In other words, the same plant may be preserved for any number of years, and be handed down from generation to generation; and that is an important point in the character of a genuine window-plant.

The treatment of this useful plant is precisely the same as the so-called "genista," or "broom," that the gardeners know as *Cytisus racemosus;* but the coronilla is a trifle hardier, and will bear rough usage patiently; and it may be fairly said that whoever fails to keep it for

some years, and to have at least one display of its flowers annually, either has very much to learn in the way of plant-growing, or is wanting in genuine love for plants. There are many who say they "love flowers;" there are comparatively few who know what the expression should imply.

The glaucous coronilla, like the golden greenhouse broom, is a free-growing shrub that attains to considerable dimensions if encouraged to grow and kept from harm in the winter. Severe frost will certainly kill it, but a light frost will do it no harm; and it may be exposed to the weather with advantage certainly during about eight months of the year. To obtain young plants, cuttings may be struck at almost any time, but with the greatest certainty in the summer. Young shoots should be selected, as the hard wood does not serve the purpose. If dibbled into sandy soil and pressed firm, and covered with a bell-glass, they soon form roots, and may then be potted into small pots in any light loamy soil. When the small pots are filled with roots, the plants should be shifted into pots one size larger, and in these they should remain for the winter, and the proper place for them then is a light airy greenhouse.

These shrubs are very accommodating. They will thrive in peat or loam, but the soil should be substantial, and there should be about a sixth part of sand added, and there may be added also about a fourth or fifth part of rotten hotbed manure.

To make handsome specimens, they should be carefully pruned as soon as the flowering is over. This is intended to keep them in shape, and to prevent them becoming unreasonably large. But they will do as well without

pruning as with it, and if the shape and size are satisfactory, and some increase of size may be allowed, it is simply waste of time and waste of growth to prune them. Why, except for some sufficient reason, destroy one scrap of any plant that nature has laboured through a whole year—perhaps through many years—to produce for you? However, having pruned them, turn them out of the pots, remove some of the old soil, and re-pot in clean pots of the same size, and do not disturb them again until they are growing freely. Then shift them into pots one size larger. Thus, before the growing season is over you will have promoted a free growth, and if this is well ripened by sunshine and fresh air, and a slight diminution of the water supply, a grand display of flowers will be seen in due time.

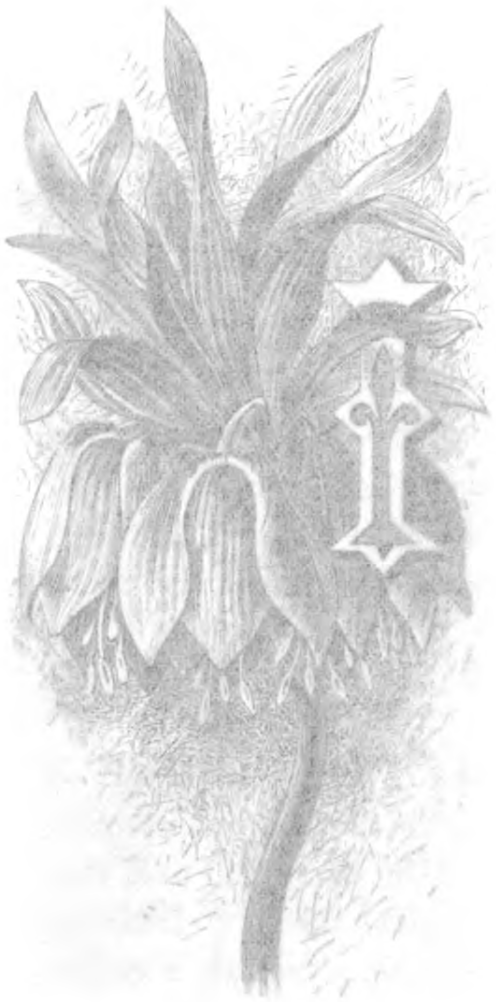
It was our good fortune to have for many years some fine plants of coronilla and cytisus. They had the most simple treatment; they were always in perfect health, and they flowered superbly. When they grew somewhat too freely, we kept them two years in the same pots, without any fresh soil. But the routine treatment consisted in turning them out of their pots in the month of April, and removing some of the old soil, and putting them back into the same pots, or into pots one size larger, and filling in with a mixture of equal parts of loam, leaf-mould, and rotten hotbed manure. They were in the open air, on beds of coal-ashes, all the summer, and they usually flowered in spring and in autumn, the spring bloom being the most abundant.

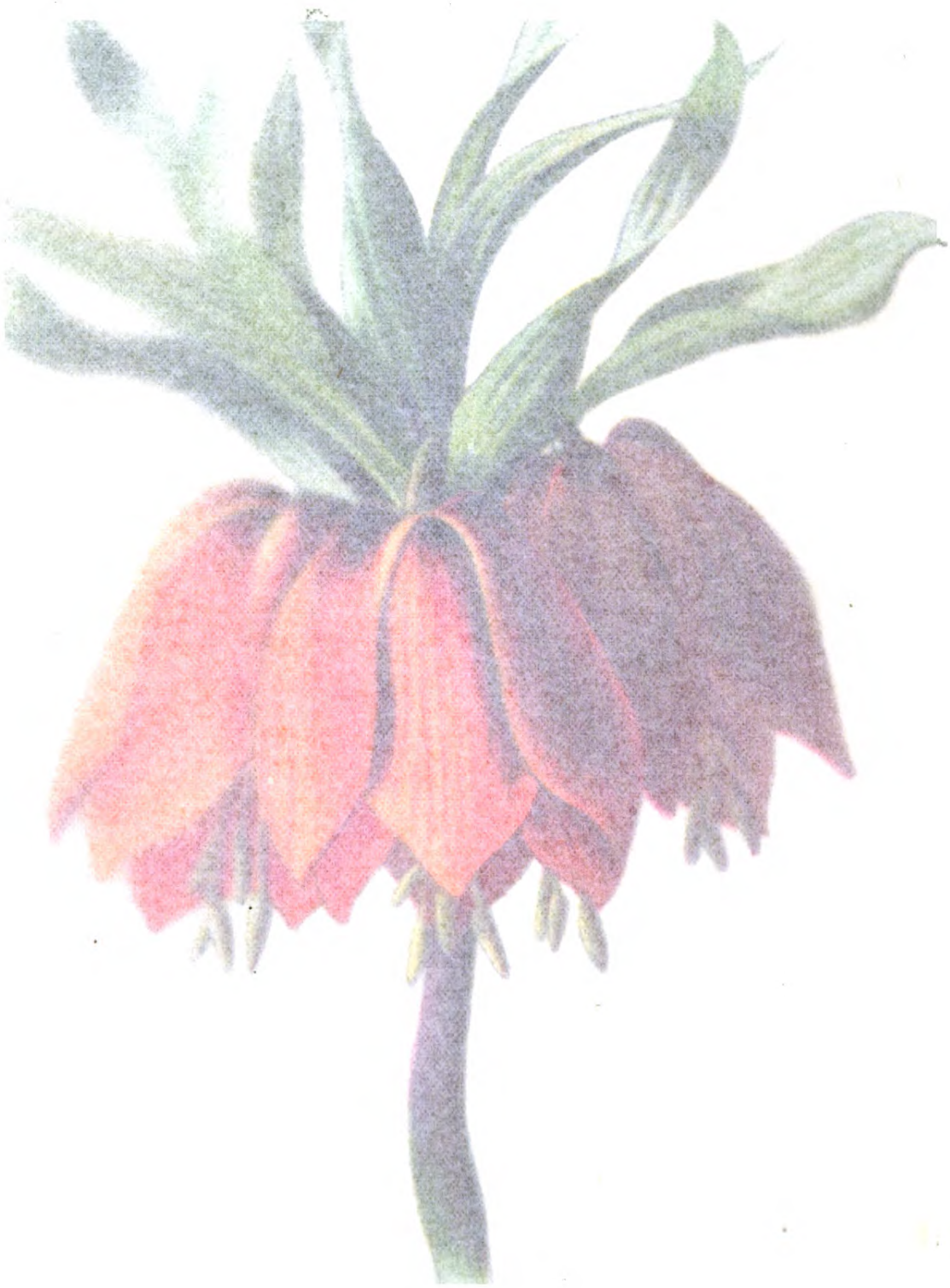
A coronilla is of necessity a garland flower or a flower dedicated to the glory of the rustic hero, with which he shall be crowned as with a crown of gold. In the com-

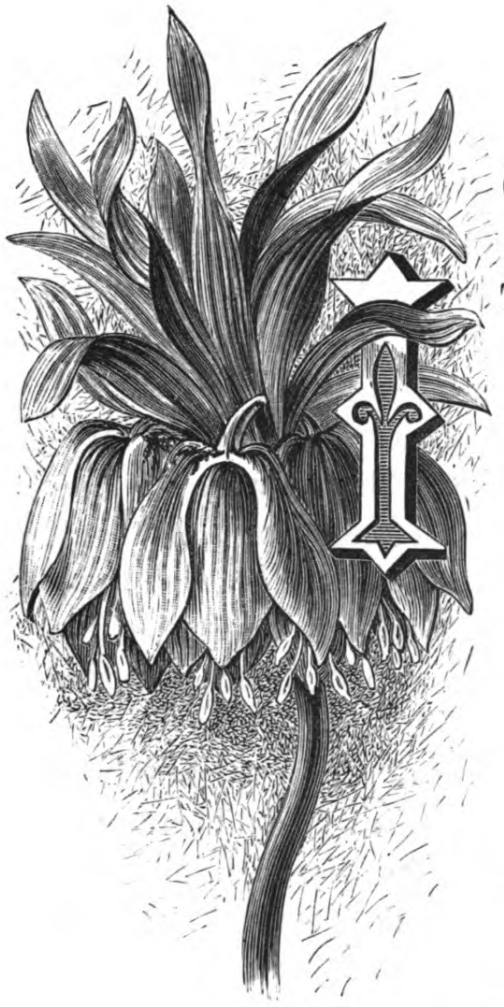
fortable country towns where window flowers are much better managed than in any of our great cities, the glaucous coronilla is called the seven-leaved crown; and there is a companion plant, equally prized with it, the *C. valentina*, which is called the nine-leaved crown. A somewhat common garden shrub in France, but not often seen in this country, is the scorpion senna (*C. emerus*), which flowers in April. This has been employed to furnish a dye that was at one time valued as a substitute for indigo. But vegetable dyes are at a discount, and even indigo may be superseded by coal-tar.

The coronilla may have enjoyed fame as a garland flower, but its name represents the likeness to a garland or crown that is seen in the disposition of its flowers.

CROWN IMPERIAL.







CROWN IMPERIAL.

Fritillaria Imperialis.

IT is not often in the present day we meet with the crown imperial, although it is one of the "old-fashioned" flowers that were in great favour before bedding came into fashion. It is a noble flower, peculiar in character, and adapted for a style of gardening that effects a kind of compromise between the old style and the new. Having an entrance court much overshaded by large trees, and desiring to keep this court in a state of permanent but changeful gaiety, we had prepared for the purpose a series of compartments faced with handsome mouldings in Ransome's imperishable stone, and a central jardinet of the same material. In place of earth these compartments were filled with cocoanut-fibre refuse, and in this material pot plants were plunged to make ornamental groups ever varying, and always beautiful. The practice carried on through a series of years developed into what

was called the "plunging system," because the pot plants were plunged in the clean brown fibre instead of being planted in open soil. The most complete success was attained in this direction, and groups of plants were grown for every season of the year, comprising hollies and ivies and other rich evergreens for the winter, and all kinds of flowering plants for other seasons. In due time a trial was made of crown imperials, and we obtained a collection of about a dozen sorts, of which we potted in the autumn about twenty bulbs of each. In an airy, cool plant-house these came into flower about a fortnight in advance of the usual time of flowering out of doors, and they proved singularly useful by reason of the brilliant green of their leafage, and the distinct tones of orange, red, and buff of their somewhat singular flowers. After the first essay we were careful never to miss a season in having a display of these flowers in connection with our plunging system.

The crown imperial is a member of the great family of lilies. The species of Fritillaria are about thirty in number, whereof only one is met with wild in England, and that but rarely. This one is the "snake's-head" fritillary (*F. meleagris*), of which a few years since we saw a collection of about sixty varieties in the interesting nurseries of Messrs. Krelage, in Haarlem. The grand old gardeners of the times of Elizabeth and the Stuarts thought much of the crown imperial. Parkinson commences his book of "The Garden of Pleasant Flowers" (Paradisus, p. 27) with this subject, saying—"The Crowne Imperiall for his stately beautifulness, deserveth the first place in this our garden of delight, to be here entreated of before all other Lillies;" and he devotes two pages to the description of it, taking

note that "the whole plant and every part thereof, as well rootes, as leaves and flowers, doe smell somewhat strong, as it were the sauour of a foxe, so that if any doe but come neare it, he cannot but smell it, which yet is not unwholesome."

The crown imperial requires a rich deep soil and a sunny exposure. The bulbs being planted in September or October, will produce their flowers in the subsequent March and April, and will die down early enough for the occupation of the ground by summer flowers. To do justice to this noble lily, it should be abundantly fed, hence in preparing the soil for it, manure should be liberally added, and in the spring, when the stems are rising, it will be an advantage to mulch around the stems with fat old manure to feed those surface roots that appear at the base of the stems. If grown as thus advised, every bulb will produce two or three stems, and each of these will produce a large bulb. Thus the crop may be said to prove profitable without resorting to the sowing of seeds. It has been our custom, as soon as the stems were in some degree decayed, to lift the bulbs and store them in a cool place in sand, until the time for planting them again. If it is intended to raise plants from seed, it will be advisable to sow the seed as soon as ripe, at the end of May or early in June, and it will be safer to sow in pans or boxes than in the open ground.

The smaller fritillaries are better adapted for pot culture than the crown imperial, although, as remarked above, we have made a pot plant of the latter to some purpose. A very important species, because of its variations as well as its intrinsic beauty, is *F. meleagris*, the snake's-head lily. In "Maund's Botanic Garden" (vi. 215) we are informed that as many as four distinct varieties may be obtained;

but, as remarked above, we have seen at least sixty in one garden in Haarlem, and these varied so much that their specific identity was a matter of question with a party of experts, until Mr. H. Krelage himself gave the assurance that they were veritable seedlings of *F. meleagris*. Mr. Niven, in his edition of "Maund," figures the *multiplex* variety, which has a perianth of many segments, the colour rosy purple, with light and dark spots.

A collection of fritillaries should include selections of the varieties of *F. meleagris* and *F. imperialis* to begin with, for these are eminently "useful," and worth growing in quantities. Then, to add to these, there are some five-and-twenty species known, but the question is, where shall we find them? The beautiful golden fritillary (*F. pudica*), the miniature fritillary (*F. parviflora*), and the slender fritillary (*F. lanceolata*) are the only sorts we can readily hear of through current catalogues of plants in commerce. As for the rest, they are scattered about in botanic gardens, whence they are obtainable by those who understand the magic method by which rare plants are passed from hand to hand.

AGERATUM

THE AGERATUM.

Ageratum Mexicanum.

AS every question has two sides, so the question whether the massing of plants in the flower — *e.g.*, the "bedding system"—is worthy of respect as a feature in garden art, has not only two but many sides. There has been much said against it, and much that is true. Its advocates have not lacked argument and demonstration in its favour. One thing may be said in its defence, while the figure of the ageratum is before us, and it is that the bedding system has brought into repute many plants that were unknown until it was discovered that they were adapted for massing, and while it has accomplished thus much, it has also improved them for the purpose. *Ageratum Mexicanum*, as figured in Sweet's "Flower Garden," 1823 (*t.* 89), is a poor thing as compared with the varieties that have been raised within the past few years for bedding purposes; and, indeed, as

they say of an actor who succeeds perfectly that he has "created" the part, so we may say that the bedding system created the ageratum. Sweet's figure represents a long-legged weedy herb, with small indecisive heads of flowers of a pale blue colour. It was raised from seeds obtained from Mexico by Mr. Bullock, and was first grown by Mr. Tate, nurseryman of Sloane Street, more than half a century ago. Now we have varieties of several shades of colour—some of a fine light azure blue, others silvery-grey, lavender-grey, and white, the plants also varying in height, some of them being so dwarf as to form moss-like tufts upon the ground. A collection of the best would comprise the *Queen*, silver-grey; *Swanley Blue*, light clear blue; *Cupid*, very dwarfed, the flowers blue; and *Malvern Beauty*, the most dwarfed of all, the heads of the flowers large, and of a beautiful blue colour. The last-named is dwarf enough for carpet bedding, and is associated with the most dwarfed of the blue lobelias. The demand, during a quarter of a century or more, for material adapted for bedding, has proved of such "creative" power that a very considerable proportion of our ornamental garden plants have been remodelled, and we may even say beautified by the hybridist for the purpose.

As is usual in such cases, several species have been employed. Amongst the garden varieties may be noted more or less of the features of *Ageratum cæruleum*, which has sky-blue flowers; *A. conyzoides*, which has greyish-blue flowers; *A. Mexicanum*, lavender; and *A. striatum*. With the exception of the Mexican plant, which is tender, all of them are hardy annuals, and yet it is customary to treat them as tender perennials, and they answer very well to such treatment. However, as in most seed catalogues two

or three sorts are entered, it is an easy matter to obtain the seeds; and to sow them in the month of March on a sunny border is sufficient to insure in the course of the summer useful clumps of flowering plants.

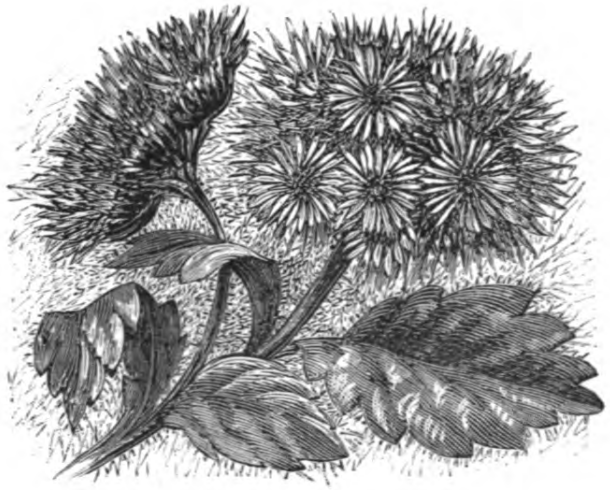
But a better way is to grow the named varieties only, and to propagate a stock every year from cuttings. There are two modes of procedure, the best of the two being, of course, the most troublesome. A few pans or boxes are filled with sandy loam, and in the month of September these are filled with cuttings and shut up in a frame, where the cuttings soon form roots if lightly sprinkled with water every day. When rooted, air is given, and they are kept as hardy as possible to prepare them for the winter. When the winter is over these are all topped, and the tops are struck on a hotbed or in a propagating house; these spring-struck cuttings are then grown for bedding out, and the winter plants from which they were taken are thrown away, or are planted in the reserve ground to supply cut flowers. If this best way of making cuttings in autumn, and again in spring, should appear to be too troublesome, the alternative is to strike in the autumn as many as will be ultimately wanted, and these, of course, will have to be planted out in the ensuing season.

To manage the plants through the winter is a very easy matter, as they are hardy, and a little frost or damp will scarcely harm them. At the same time, a good pit or house is the proper place for them. In the spring, when they begin to grow, they should be pinched back occasionally to keep them dwarf, and should have air and light freely, and be fully exposed in open frames from the end of April until planted in the beds.

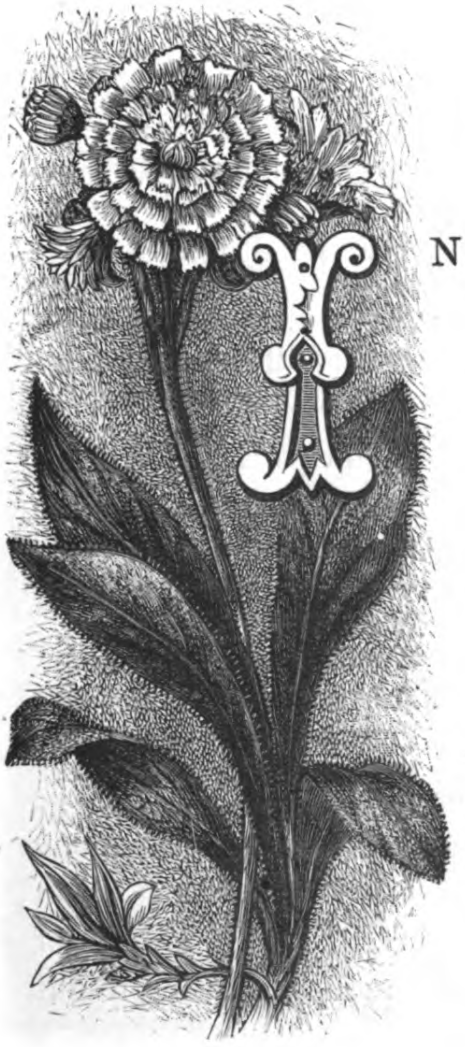
The ageratum will grow fairly well in any soil, and as

a border flower will bear partial shade. But to obtain a fine bloom the soil should be rich and deep as for the dwarf lobelias and verbenas, none of which ever attain to perfection in a starving soil.

The evolutionists have concluded that blue flowers are derived from red and white flowers by a long process of modification, blue being a sign of the highest order of development in the vegetable kingdom. Thus, they say, is explained the comparative scarcity of blue amongst flowers. We have not many in the garden, nor are there many in the field. While the nodding squill makes a blue cloud on the skirts of the woodland, we may find on the railway banks and hedgerows a blue to match it in the germander speedwell, and at the same time there should be seen on the garden rockery three blue flowers of the most glorious character. They are *Lithospermum prostratum*, *Veronica saxatilis*, and *Myosotis rupicola*. A few large sheets of these on a spacious and sunny rockery will effect a surprise in the months of May and June.



HAWKWEED.



THE HAWKWEED.

Hieracium aurantiacum.

IN the first substantial book of botany in the English language — the "Herbal" of William Turner, 1568 — the hawkweed is admitted to the high dignity of affording a problem in nomenclature. The older botanists were so ready at all times to believe anything, that it is quite amusing to find Turner saying, "I can not gesse why this herbe shoulde have the name of a hawke, seing other herbes have the same properties that this hath." But it suggests to us that Englishmen were beginning to think for themselves in the reign of Elizabeth, and the way was fast preparing for that true science whereof the great Lord Bacon was destined to speak as a prophet and to act as a master. However, to keep to Turner for a moment, and forget all that happened after him, he comforts us with a bit of philosophical etymology. He says the hawkweed probably takes its name

"from the downe that groweth in the toppe after the flowers be gone," these feathery seeds being "good to be taken of the hawke, to make him cast his gorge wyth it." That it should be good against "the stingginge of a scorpion" does not aid us in the study of the etymology, because the old botanists regarded almost every weed that grew to be a "sovereign remedie" against scorpions and other "venomous beastes."

The plant here figured is the best of the hawkweeds for the garden, as it is a perennial, quite hardy, and its orange-coloured blossoms appear at a time when flowers of that colour are scarce, for yellow tones belong rather to spring and autumn than to high summer, when this is at its best. It is a native of Southern Europe, but is occasionally met with in the woods of England and Scotland, as the sweet mignonette, the Eschscholtzia, and the umbellate candytuft are met with, as escapes from gardens. It is sufficiently common, indeed, to have obtained a familiar name, for in the rural garland it is called Grim the Collier, because of the black stains that appear at the base of the hairs on the stem and involucre. There was a comedy of the same name in high popularity in the time of Queen Elizabeth, from which it may be inferred that "Grim" was a kind of generic name for a black fellow, who perhaps in the present day would be called a "coaley."

Amongst the annual hawkweeds, the best are the red hawkweed (*Crepis rubra*), the flowers of which are reddish-purple, and the yellow hawkweed (*Tolpis barbata*), with pale yellow flowers, which are purple in the centre. Of both these there are white varieties, making four sorts in all, the seeds of which should be sown where the plants are to remain, as they do not thrive when transplanted. As

regards culture, any soil will suit them, and if sown on a sunny border in the month of March, they will take care of themselves entirely; but it will be prudent to thin out the clumps, for crowded plants never prosper.

The yellow hawkweed appears to throw a light on the origin of the name hawkweed, although its own botanical name of *Tolpis* has never been explained. The flower, with its yellow rays and dark disc, may be likened to an eye, and the eye of the hawk is proverbial for its keenness. We have but to suppose the hawk resorted to this flower to sharpen his vision, and the explanation is secured. To be sure, a supposition is but a supposition. But that is just the way the ancients made names for familiar things; they had little philosophy, but plenty of fancy, and when reason did not guide, analogy deluded them. About nine-tenths of the ancient names of animals and plants are founded on the flimsiest of fancies.

The larger kinds of wild hawkweeds are often mistaken for dandelions, but they differ in many respects, and they flower later, and are less gaudy in their colouring. The smaller kinds, such as the mouse-ear hawkweed, are neat and pretty, but they do not attract notice as do such kinds as the honey-wort hawkweed and the wall hawkweed. These are so abundant on dry banks and ruins and heathy spots in the later days of summer, as to make a fair semblance of flower-beds in many waste places. They congregate on gravelly soils, as the poppies do in the cornfields, and contribute greatly to the enjoyment of the wandering botanist. As compared with the dandelion (*Leontodon taraxacum*), the "sunflower of the spring," they lack its splendour, and are less conspicuous. Nevertheless, the lines of Lowell on the earlier and more familiar

flower may be properly quoted here as a tail-piece to this miniature essay :—

"Dear common flower that grow'st beside the way,
Fringing the dusty road with harmless gold—
  First pledge of blithesome May,
Which children pluck, and full of pride uphold,
  High-hearted buccaneers, o'erjoy'd that they
An El Dorado in the grass have found,
  Which not the rich earth's ample round
May match in wealth—thou art more dear to me
Than all the prouder summer blooms may be.

"Gold such as thine ne'er drew the Spanish prow
Through the primeval hush of Indian seas,
  Nor wrinkled the lean brow
Of age to rob the lover's heart of ease;
  'Tis the spring's largess which she scatters now
To rich and poor alike with lavish hand,
  Though most hearts never understand
To take it at God's value, and pass by
The open'd wealth with unrewarded eye."

S

COMMON FLAX

COMMON FLAX.

Linum usatissimum.

THE garden of economic plants exists in idea only; there is no such thing as a matter of fact. The subject now before us suggests that a studious amateur gardener might accomplish what has been accounted one of the greatest triumphs imaginable—the creation of a new pleasure—by forming a garden of economic plants. Some of these are exquisitely beautiful, and others, that might not attract by their beauty, will always interest by their direct relation to our daily comfort and to our national prosperity; for mere usefulness is in one sense true beauty, but when we make that declaration we must beware of being overheard by professors of extreme æstheticism. In the garden of economic plants we should find the flax, of course, and the hemp also. How few amongst the thousands who have gardens really know either of these plants! Where shall we find the pretty lentil from the seeds of which Jacob made

his mess of pottage? Who knows the canary grass, with its handsome plumes that finally shed shining seeds for the little birds? How many of our wayside botanists could find us the earth-nut, if a sudden famine made its sweet and nourishing root acceptable in the place of bread? The beauty of the cotton plant is unsuspected, and the sugar maple gives a shade that is very pleasant. It is easy to begin, but no one can say where we should end in collecting and cultivating economic plants.

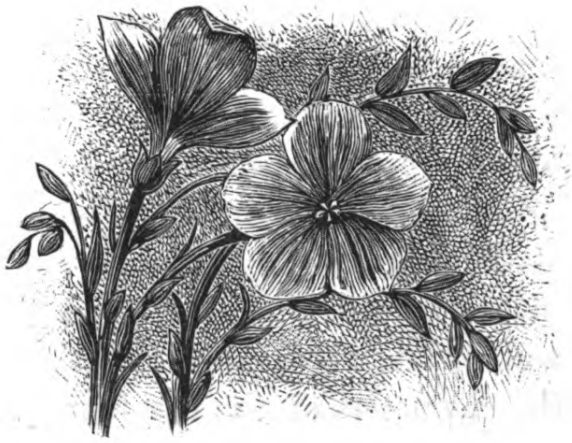
The common flax (*Linum usatissimum*) is a beautiful plant, likely to appear, with the hemp and the canary, as mere weeds in the garden of the bird-fancier, because the waste of the cages must be sometimes scattered. As regards the flax, it is a weed of the world, for it occurs everywhere as a wilding, not only in Europe and Northern Africa and Asia, but in the southern hemisphere, having been carried by the hand of man wherever he has carried merchandise. It is a tall, slender, exceedingly neat plant, with narrow lanceolate leaves and flowers, crowning the stems in a loose corymb, conspicuous for their large size and their bright blue colour. The petals are obovate and the sepals are pointed. The oily seeds are contained in a depressed globular capsule; they are of a rich dark brown colour, glossy, of a peculiar flavour, and in their medical uses decidedly laxative. It is not often they are given to caged birds, but every one who has the care of these interesting creatures should keep a few "linseeds" in the store-room in case of emergency. Birds that are fed almost exclusively on canary and hemp, with perhaps insufficient vegetable food, may be benefited by an occasional treat of two or three of these oily laxative seeds. The oil that is pressed from linseed is of great importance in the arts,

one of its uses being to supply the principal material for printers' ink. Indeed, the flax has done more for literature than any other plant that can be named. The linum, or lin, supplies from its stem the fibre for linen, and from linen waste is made paper. The ink and the paper may therefore be said to be derived from one and the same source, and this plant is the commonest thing in the world, and grows everywhere, while as to its beauty, we may search far ere we shall find a plant of its own range of habit and colour that can surpass it. To compare it with the plumbago is not unfair, and we incline to the opinion that in the comparison the flax will have the best of it.

There are four British species of flax, perhaps; at all events, there are four in the books. One we will consider disposed of. The next is the perennial flax (*Linum perenne*). It often so nearly resembles the common species that we doubt its specific independence. However, the sepals are obtuse, the root-stock is perennial, the stems are sometimes procumbent, and the plant is a mountaineer, whereas the common flax is a lowland plant. The pale flax is *Linum angustifolium;* it has pointed sepals, but in general complexion resembles the perennial flax, and it is sometimes a perennial and sometimes an annual. Its common name indicates that its flowers are of a paler blue than the others. The cathartic flax is a slender annual with white flowers, and one that will puzzle the young botanist who has not yet mastered the characters of the flax family.

The Alpine flax (*L. alpinum*) is perennial, and of exceedingly dwarf habit. It is a pretty rock plant, and requires a sunny situation and a dry soil. The one-styled flax (*L. monogynum*) is so called because it usually has one style instead of five, but this character is not constant. It

is a fine, showy plant, producing large white flowers, and is quite hardy in a well-drained peaty soil. It may be raised from seeds or cuttings, but is not easily increased by division. But the finest of all, after the scarlet flax, is the yellow flax (*L. flavum*), which is often grown in quantities for the flower markets, the best proof possible of a certain quality which the florists denominate usefulness. It is a gay, hardy perennial, good enough for any garden, and very distinct in all its characters. It does not often ripen its seeds, but it is easily multiplied by cuttings. The flowers are golden-yellow, opening early in the morning. The evergreen flax (*L. arboreum*) is of shrubby habit, the leaves are greyish-green, the flowers yellow; a good rockery plant. The Narbonne flax (*L. Narbonnense*) is a grand species, a little tender. The flowers are light blue.



CLOVE CARNATION.

THE
CLOVE CARNATION.

Dianthus caryophyllus.

IT is impossible to determine with exactitude which amongst our garden flowers is the oldest in the history of floriculture. But this is certain, that the carnation is one of the oldest; and as an English flower it is possibly older than the tulip, which, it must be confessed, will run a close race with it when the question is considered from a florist's point of view. As to the origin of the flower, it is beyond doubt the offspring of a wilding of the south of Europe; and it is probable Pliny is correct in saying —as in his twenty-fifth book he does—that it was discovered in Spain in the days of Augustus Cæsar. The "cantabrica," which we take to be the carnation, was, he says, employed by the Spaniards to give a spicy flavour to their beverages, thus antedating the "soppes in wine" to which our old English writers occa-

sionally refer. Thus, in the reign of Edward the Third, Chaucer, in describing a rural scene, wrote in his quaint language—

> "Ther springen herbes, greet and smale,
> The licorys and the cetewale,
> And many a clow gilofre;
> And notemuge to put in ale,
> Whethir it be moist or stale,
> Or for to lay in cofre."

The "cetewale" in this verse is the valerian, and the "clow gilofre" is the clove carnation, which was used in the preparation of a spicy cup, and also to lay up with garments in a coffer or clothes-press. By "gilofre," "gilloflower," or "gilliflower" many very different flowers were formerly understood, but always with a qualifying prefix, as the "stock-gilloflower," the "wall-gilloflower," &c.; but *the* gilloflower of the old writers was beyond all doubt the carnation. Strange to say, this is a corruption of the Latin *caryophyllum*, a clove, the fragrance of the flower being like that of the clove of commerce; and in days when spices were costly, a carnation was a cheap substitute for the real thing. The more familiar name "carnation" refers to its colour, and this in old times was corrupted to "coronation," and was thence associated with the custom of wearing it by lovers as a crown or chaplet, to denote that their hearts and hands were engaged.

The carnation, as a garden flower, must have been known in this country from very ancient times; and it is probably true that the yellow varieties were introduced, as Gerarde describes, by Master Lete about the year 1580.

Stow says they came from the Low Countries in 1567. We are, therefore, to suppose that previously to the last-named date none but self-coloured cloves were known;

and yet Perdita, in the "Winter's Tale," which was written in 1601, speaks of "streaked gilivors," not as things hardly known, but as old inhabitants of the garden; for Shakespeare did not weaken his sentiment by appealing to facts with which his auditors were unfamiliar. One thing is certain, however, that in the year 1629 John Parkinson had a large collection, and they comprised all the classes now cultivated, with the single exception of the picotee.

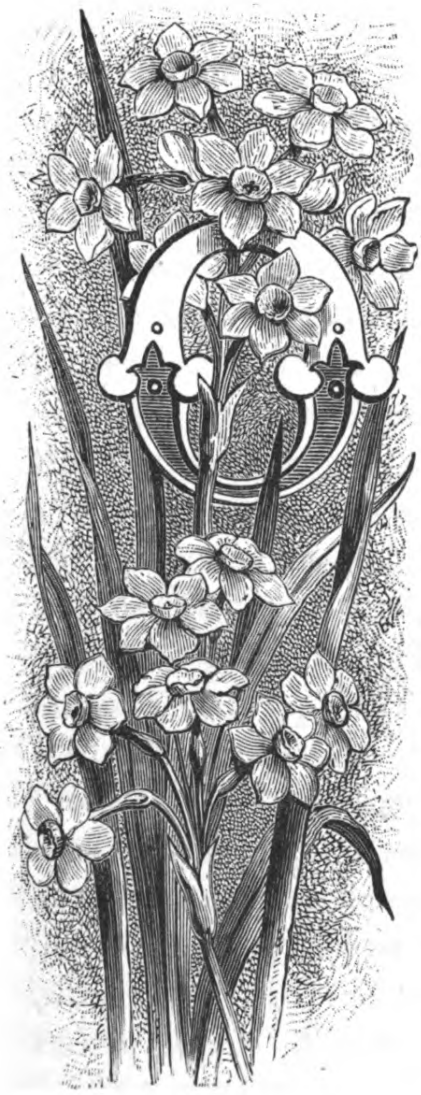
In the cultivation of the exhibition carnations, a loamy soil, enriched with thoroughly rotted manure and vegetable mould, is of the first importance; and all possible precautions should be taken to exclude or to trap wire-worms, which are their greatest enemies. The plants are propagated from seeds, layers, and pipings. The beginner will find it easier to commence by raising a stock from seed, the proper time to sow which is the month of May.

But layering is requisite for the perpetuation of trained varieties, and the art may be fully acquired with the practice of one season. The steps and stages of the process are as follow:—A suitable shoot is first brought down to the ground, and fixed by means of a peg cut from a hazel twig or the common bracken. The operator having thus far obtained command of it, puts the peg aside, and then removes the lowest leaves from the shoot, so as to leave the three topmost joints with their leaves intact. He now cuts the shoot half through, just below the third joint, and then turns the knife aside to carry it upwards along the middle of the shoot to about half an inch from (that is to say, beyond) the joint. The result will be the formation of what is called a tongue, which will include a portion of the joint. The greater part of this tongue is removed; but it is important that the joint portion of it should be

left unhurt, as from that joint the roots will proceed. The shoot thus operated upon is again bent down and fixed firmly with the peg, and the divided joint is covered with some fine rich soil, and is watered occasionally, the result being that in about six weeks there will be enough roots formed to allow of the removal of the layer as a young plant. From the middle of July to the middle of August is the proper time for this business. Practice simplifies the work so much that the preliminary bending down becomes unnecessary.

To make pipings, the weaker shoots are selected about the end of June or early in July. The shoot is cut square off at the second or third joint from the top, and the lower leaves are removed. The pipings are then inserted in sandy soil, and kept shaded and watered until they are rooted. It is usual, however, to place the pipings on a mild hotbed, on account of their reluctance to throw out roots unless aided by specially favourable conditions.

POLYANTHUS NARCISS.



POLYANTHUS NARCISS.

Narcissus tazetta.

ONE of the smaller shadows that fall upon the garden of daffodils is the fact that the polyanthus narciss is not quite hardy enough for association with the trumpet, the incomparable, and the poet's narciss. These are all so hardy that it is quite a rare occurrence for frost to touch them; but the polyanthus or tazetta section are often crippled when just ready to bloom, and are, therefore, not to be depended on as border flowers, save in the very favourable climates of the southern and western counties. There they are safe enough, and any good soil will suit them; but they require a somewhat shaded situation, for strong sunshine distresses their somewhat succulent leafage at the time when the flowers are being formed in the bulb for the next year. Even in London, however, the tazettas may be grown with success during a series of years, provided the winters are neither late nor particularly severe. We have

seen them on our heavy land on the northern side of the metropolis doing well for half a dozen years in succession. Then came a terrible winter, and many were killed, and the survivors flowered poorly, or did not flower at all.

It happens fortunately that as these daffodils require pot culture to be quite safe, so they are particularly well adapted for pot culture, and amongst the most valuable of our early conservatory flowers. And as the jonquil narciss is equally worthy of pot culture, a few remarks on the management of these two flowers may prove useful.

The bulbs should be potted as soon as they can be obtained, and the time of flowering of any or all can be in great part determined by the cultivator, who will regulate the treatment in accordance with his requirements. All bulbs should have as long a season as can be allowed for them to make roots and prepare for flowering; and if they are wanted to flower late, they must be kept cool, so that the top growth will be retarded. Prepare for the business a compost, consisting of turfy loam three parts, leaf-mould or rotten dung (or both) one part, and sharp sand one part. The pots should be clean within and without; if new, all the better. For all general purposes 6-inch pots are to be preferred; in these place three bulbs of tazettas, or four of jonquils. If 8-inch pots are used, put in them five bulbs of tazettas, or eight of jonquils. The pots must be crocked with care to insure perfect drainage; the soil must be slightly pressed to make it firm, and the bulbs should be covered with just enough soil to hide them from view, but with their necks visible, say, for an inch or less. When potted, pack the pots together on a hard pavement in a sheltered but cool place, and cover them two or three inches deep with cocoa-nut

fibre refuse, or with coal ashes, or with sand. If they are to be forced, you will be compelled to take them out in time to be in flower when wanted, but if they are to be flowered in a cool conservatory in their own time, you must see that they do not make any great amount of top growth in the plunge bed. As soon as any begin to peep through, remove the material with which they are covered, and put them into a frame or very cool house. If in a frame, shade with mats or canvas for a few days; if in a house, put them on the floor. The object in exposing them to a very subdued light is to assist the healthy colouring of the blanched portions without undue haste; but as the plants acquire a healthy green colour the shading must be removed, and they must be placed near the glass.

It now rests with the cultivator, to a great extent, to have a succession of flowers, or to have all in flower at once, or nearly so. When we talk of *forcing*, we usually make a distinction between that and *forwarding*, for all culture of hardy plants under glass consists in forwarding, even when no heat is employed. It should be understood, then, to prevent disappointment, that the tazettas and jonquils bloom in the most satisfactory manner when they are simply forwarded, and not forced. In fact, the *Paper White Narciss* and the *Roman Narciss* are the only two kinds that force well, no matter how skilful the treatment may be; but all the kinds, including the hardiest of the trumpets and incomparables, may be forwarded in what may be called a "comfortable" temperature, without the heat of the stove or forcing-pit. Keep them safe from frost, give them water liberally, keep them near the glass, and they will give you less trouble to flower them well than would a pot of chickweed or pimpernel; and even

these might be worth growing in pots under some circumstances. As a matter of fact, we have seen both these British weeds grown in pots and exhibited, and we have had to adjudicate officially on their merits.

In the selection of varieties, the following should have first consideration amongst the thirty or more tazettas that are in cultivation :—*Bathurst*, primrose, with orange cup; *Bazelman major*, white, with yellow cup; *Grand Monarque*, white, with citron cup; *Groot Vorst*, white, with citron cup; *Jaune Suprême*, pure yellow; *Paper White*, pure white, very early; *Sulphurine*, sulphur, light yellow cup; *Roman*, double white, orange cup; *White Pearl*, pure white, primrose cup.

GLOXINIA.

THE GLOXINIA.

Gloxinia speciosa.

THIS beautiful flower is a very remarkable exemplification of one of the great aims of modern science, which is the annihilation of Time. You have heard of, and possibly you may have seen, the Indian juggler who sows a seed in a pot of earth, and in the course of a few minutes presents to your admiration the plant the seed produces—not in a nascent state, as we see a pea or bean emerge from the earth, but complete, with stout stem, many leaves, perfect flowers, and fruit. How is it done? We decline to tell, because we do not know. This, however, we all know, that the essence, the very life, and, indeed, the intention of all conjuring is deception. Now the subject before us does not bring into the field this element of deception, but it does in the most striking manner illustrate the capabilities of science in the annihilation or the reduction of Time.

For many years past the florists, like the cattle-

breeders, have been systematically shortening the time of the perfecting of their produce for the market. The breeder of cattle has to keep in mind that his horned family must be ready for the market at an early date, and the feeder has to work up to the breeder's notion, in order to make the meat manufacture pay. This is well known; and one of its results is that as civilisation destroys our teeth, it at the same time provides us with tender meat.

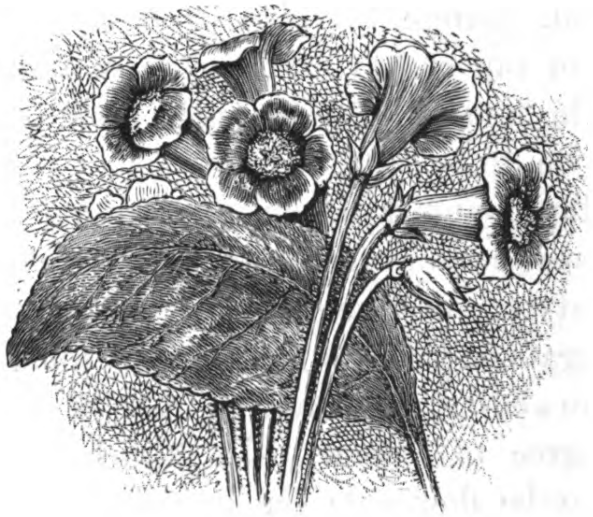
If you will turn back to the horticultural papers of, say, thirty to fifty years ago, you will quickly learn that the growing of good gloxinias, cinerarias, calceolarias, and other of the more delicate florists' flowers, was slow work; but now it is done in "no time," and one may well be flustered when suddenly called upon to discourse in a learned way on any of these subjects. *Imprimis*—Begin with offsets; lose a lot; have great trouble to root them and to keep them—bah! Begin with seeds that will grow like weeds; lose none, and have a stock of gorgeous plants in about three months without difficulty, instead of in three years with difficulties innumerable. Somebody else may say "bah" now; the sheepish ones are those who stick to the old custom. Many earnest workers have contributed to this "shortening" process in the manufacture of our floral fancy bread; but few have laboured so consistently, scientifically, and with such solid results as Messrs. Sutton and Sons, who can show at any time between June and October gloxinias grown quickly from seed, that may be allowed to turn with delight the head of any one who knows a gloxinia.

The gloxinia is a stove plant, loving moisture and some degree of shade. Like our own foxglove, which may be called the British gloxinia, it is a woodland plant, and

enjoys in its nourishing bed the tricklings from the fountains far above it on the happy hills. It must be grown in a good soil, and with heat and moisture sufficient, or it had best not be grown at all—because, in truth, it will not flourish unless kindly treated. For the great grower, the month of January is the time to sow the seed; for the little grower, the proper time is before the end of February. The sowing is a nice affair. Those who skimp are sure to limp, for the plant will not be trifled with—and, indeed, why should it, when it has done no harm to anybody? Prepare for the purpose a compost of peat, loam, leaf-mould, and silver sand, and with this fill convenient-sized pots or seed-pans. A shallow seed-bed will answer perfectly, therefore deep boxes are not required. Having sown the seed, plunge the pots or boxes nearly to the rim in a bed of tan or any other moist material, the temperature of the house or pit to range from 65° to 75°, the mean, of course, to be 70°.

The seedling plants will soon appear, and should be as quickly as possible transferred to thimble-pots in a rich, but light, peaty compost, and kept growing near the glass, and shifted again as soon as the pots are filled with roots, until they are allowed to flower in pots of a suitable size for their degree of vigour. In 5-inch pots beautiful specimens may be flowered; but in the second year these may have 8-inch pots with advantage. They require abundant supplies of water, but should never be wetted overhead; and whenever a plant presents an unhealthy appearance, lift the pot, and consider if it is heavier than it ought to be. If it be so, turn out the plant, and you will find that stagnant moisture has made the soil sour, and is the sole cause of the poor state of the specimen. A

plant that is supplied with more water than it can swallow is in a very unhappy predicament. We have lately seen an interesting exhibition—a gentleman engaged to judge at a children's flower-show blindfolded. The plants were handed to him, and he judged them by the *weight*. All the heavy ones he condemned; and in this case he was right, for all the heavy ones were bad. But in regard of the light ones he made a few mistakes; but generally speaking, the light ones were good, but not so uniformly as to justify the principle on which he relied. But how instructive to us all is this judging of plants by their weight!



DOUBLE TRUMPET DAFFODIL.

DOUBLE TRUMPET DAFFODIL.

Narcissus pseudonarcissus.

THE trumpet daffodils constitute a distinct and important section of the great genus Narcissus; and they are, without doubt, the most useful of all our garden flowers, and eminently gay when, in the timid days of spring, they present their golden flowers. The double daffodils belong exclusively to the garden. Those that enrich the midland meadows in primrose time are invariably single, and of one distinct type, known as the English daffodil. It is of these more especially that Shakespeare speaks in the famous passage in the "Winter's Tale" where Perdita sighs for "some flowers o' the spring' wherewith to welcome the young people at the shearing feast—

"Daffodils,
That come before the swallow dares, and take
The winds of March with beauty; violets dim,
But sweeter than the lids of Juno's eyes
Or Cytherea's breath; pale primroses
That die unmarried, ere they can behold
Bright Phœbus in his strength."

It is the early flowering of these trumpet daffodils that renders them so especially valuable in the English garden, and that has suggested to the greatest of poets the sweetest and simplest passage on spring flowers that has ever been written. From first to last, through all the fifty or more, as the case may be, these daffodils are amongst the hardiest of plants known to us; no frost hurts them; the "winds of March" cannot despoil them, and they are careless of conditions, provided they have soil of some sort to grow in, and are not at any time exposed to the full glare of the advancing sun. Although these comprise only one section of daffodils, there being at least four other sections equally distinct in character, they constitute a subject for an elaborate study, and the student of vegetable form may do well to secure as large a collection as possible, both for scientific observation and to add to the joy of the garden. One striking characteristic of the group is to be found in their delicate gradations of size and form with strict adherence to type, so that however they may differ in degree, we have no trouble at any time in determining that each is a veritable trumpet daffodil. In *Minimus*, *Minor*, and *Nanus* we have three miniature varieties that in their way bear the closest resemblance to *Maximus*, *Princeps*, *Telamonius*, *Emperor*, and *Volutus*, which are the largest of the section, the noblest in form and colour, and may truly be described as gigantic daffodils. Nor does the family likeness fade in the lovely *Bicolor*, *Empress*, and *Moschatus*, in which there are two distinct colours, white and yellow; or in *Cernuus*, which keeps its head down as if in trouble, and is wholly white, or but slightly touched with a delicate creamy shade.

In the process of doubling, a departure from the family

likeness is made, and it must be owned there is a departure also from the prevailing beauty of the trumpet series. None of the double flowers can be properly said to equal the single ones in elegance, but they make more show, and they last longer; and if nature is pleased to give us double flowers we must accept them with thankfulness. For the student of daffodils, the double are as attractive as the single flowers, for the origin of their several parts, and the manner in which the process of doubling is accomplished, present subjects for inquiry not soon to be exhausted. Some flowers occur that are double within the trumpet only. In this case the organs of reproduction may be supposed to be converted into petals, or their equivalents. Other flowers occur that are double outside the trumpet, which remains intact in the midst of a crowd of golden banners; and others, again, are double throughout, like a double rose, and the trumpet is completely lost in a confused mass of petals—or, to be learned, we will say perianth segments.

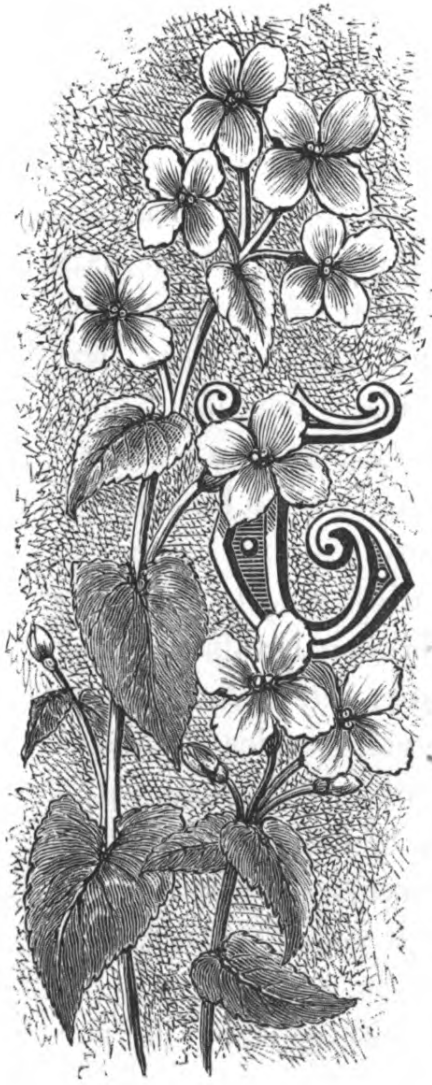
When we inquire into the origin of these many petals, we find that we can in theory account for many of them. For example, the outer segments or petals are six in number; the trumpet consists hypothetically of six lobes united at their edges; there are six stamens and a stigma of three lobes. Thus in a common single trumpet daffodil there are twenty-one parts in all. How many separate parts there are in a very double flower we do not know, for we have never succeeded in counting them. We began with a flower called *Grandiplenus*, and having stripped from it sixty parts, found there were fully three times as many remaining, a considerable proportion of these being green scales, like miniature leaves.

As garden flowers, the finest of the double daffodils are *Telamonius plenus*, the largest yellow; *Cernuus plenus*, a lovely white rosette flower; and *Cernuus bicinctus*, a pretty and curious white flower, with a double trumpet and two rows of guard petals.

All the trumpet daffodils are suitable for planting on rockeries and in common borders; and although they will thrive almost anywhere, a deep moist loam is the kind of soil in which they are likely to attain to the finest proportions. A certain amount of shade is favourable to their well-doing; but they love light and air, and to be overmuch shaded is unfavourable to their flowering.

The bulbs should be planted in autumn in clumps of six to twelve, about three or four inches deep, and should be left undisturbed for several years, to insure abundant flowering.

HONESTY.



HONESTY.

Lunaria biennis.

THIS old-fashioned flower comes to us with quite a new name, that has, like the flower, a very old-fashioned appearance. It is not known as "Honesty" in the old herbals, but as the satin violet, which is by no means a bad name for it. In Lyte's "Dodoens" (1573) common single pinks are called "small honesties;" but we have not found any merely nominal "Honesty" in honest John Gerarde or John Parkinson. They tell us of *Viola lunaris*, the Bobbonac or satin flower; and John Gerarde figures it well, while the other John figures it very poorly. Gerarde saith "the stalks are loden with many flowers like the stocke gilliflower, of a purple colour, which, being fallen, the seede commeth foorth conteined in a flat thinne cod, with a sharp point or pricke at one end, in fashion of the moone, and somewhat blackish. This cod is composed of three filmes or skins, whereof the two outmost are of an ouerworne ashe colour, and the inner-

most, or that in the middle whereon the seed doth hang or cleaue, is thin and cleere shining, like a piece of white satten newly cut from the peece." A better description one could not desire; but we are inclined to add that when a number of honesties are in flower in a country garden they afford us immense pleasure, because of the various, and often delicious, shades of purple their fine flowers display. The moon-like seeds, divested of the dark outer skin, are so often seen as ornaments of the chimney-shelf, that the propriety of the term "satin flower" will not be challenged. Dr. Prior, in his "Popular Names of Plants," derives the name honesty "from the transparency of its dissepiments;" but he gives no hint of the time when the name first came into use.

A hunt amongst our big books discloses the name for the first time in works by the Rev. William Hanbury, 1771, and by Philip Miller, of the same date; the earlier editions of Miller appear not to recognise the plant under any name. If the result of this casual search is of any definite value, it proves that the "ancient" name of honesty has been borne by this plant only a little over a hundred years, which is nothing for a name, although happily the quality of honesty is of really ancient date.

A very little horticultural skill suffices for the successful cultivation of this plant. Being fearful of the simplicity of the subject, we have turned to Hanbury, who thus directs:—"This plant is propagated by sowing the seeds, soon after they are ripe, in any soil or situation, for nothing of that sort comes amiss to them. After they have once flowered and shed their seeds, they will propagate themselves, coming up in plenty all over the garden. Nay, in neglected gardens, they will rise among

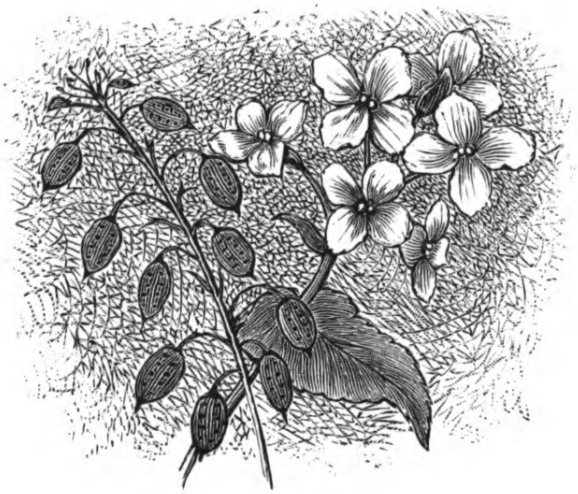
the weeds, and exhibit their satin-like, broad, flat, pellucid pods as if they belonged to the same fraternity."

But there is a high culture of everything, even of honesty. Therefore I will ask you to fly with me to Belvoir Castle. There, on a grand slope overlooking one of the finest woodland scenes in Britain, is a paradise called the "Duchess's Garden," planted with hardy spring flowers for the most part, and beautiful beyond description from March to May, after which a little touch of the commonplace comes over it, although it is always bright and glorious. Here the lunaria plays an important part in the spring colouring, and a definite system is followed in its cultivation. It consists in the destruction of every inferior plant the instant the flowers are seen, and the saving of seed from the very best. The seeds are sown in frames and sheltered beds, and in the course of the summer the plants are put out where they are to flower in the following spring. Occasionally, plants that possess particularly fine qualities are propagated by division; but careful selection of seed is generally sufficient to insure strong plants and flowers of the finest colour. When we have basked in the sunshine and inhaled the sweet odours of this grand garden of spring flowers, we have recalled the lines of Gower:—

> "For there no stormy weder falleth
> Whiche might greue man or best:
> And eke the londe is so honest
> That it is plentuous and plaine
> There is no idell ground in vaine."

With such a subject, a moment of moralising may be allowed, but we will not trust to any wisdom of our own for a homily on honesty. We prefer to turn to a great

gardener, Sir William Temple, who, in an "Essay on Government," written at a time when good government was much wanted, spoke as follows:—"Goodness is that which makes men prefer their duty and their promise before their passions or their interest, and is properly the object of trust; in our language it goes rather by the name of HONESTY, though what we call an honest man the Romans called a good man; and honesty in their language, as well as in French, rather signifies a composition of those qualities which generally acquire honour and esteem to those who possess them.'



THE POET'S DAFFODIL.

Narcissus poeticus.

READERS of old books may be sometimes perplexed by references to daffodils and bastard daffodils, and may even ask why the English narcissus of the meadows is called a pseudo-narcissus. There are two explanations at hand. According to the legend the flower sprang from the dead form of the beautiful boy, who, turning from the favouring smiles of Echo, by whom he was beloved, to admire his own image in the water, fell in and was drowned, the victim of self-love. As the flower was named "Narcissus" to keep him in remembrance, the question will arise, which amongst many kinds is the fabled narcissus? The flower now figured was and is the veritable remembrancer; it is the true narcissus of the poets, and of its mythical origin let those doubt who dare. It follows that other narcissi are pseudo-narcissi, and as such we

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find them entered in the old books, the designation serving to remind us that we must not look for the likeness of the youth in any flower but this lovely *Narcissus poeticus*.

It is the last to flower of all the charming family to which it belongs, and when its snowy blooms are seen nodding to the wind and the sunshine we know that summer is near at hand, for this is not one of the "daffodils that take the winds of March with beauty," for it rarely flowers until the month of April, and in late seasons is not seen until towards the middle of May.

The poet's narciss is a plant of Southern Europe, very freely scattered on the coast-lines of the Mediterranean and Adriatic. It is nevertheless quite hardy in the English garden, and a thriving plant, bearing patiently a certain amount of shade, yet flowering but poorly if much overshaded. It agrees with other daffodils in requiring a deep, rich, moist soil; and therefore, when planted in a garden where the soil is thin and poor, stations must be prepared for it with some good loam and well-rotted manure.

Since the narcissi have obtained scientific attention many fine varieties have been introduced or recovered from oblivion, to the great advantage of our gardens. Amongst the varieties of *Narcissus poeticus* will be found considerable diversity of character, both in the size and disposition of the white perianth segments, and in the colours of the corona or annulus which lights up the centre of the flower. The largest and noblest is called *Grandiflorus*. This is pure white with crimson annulus. *Ornatus* has large flowers with rosy annulus. In *Tripodalis* we have a suggestion of the tripod,

the six segments dividing into two sets of three each, and one set reflecting considerably from the plane of the annulus. *Poetarum* has a crimson crown; *Stellaris* has separated segments like the rays of a star, and *Verbanensis* is a little mite about the size of a sixpence, but with all the characters of *N. poeticus* fully displayed. The double variety called *N. poeticus flore pleno,* also known by the later name of *Gardenæoides* (because it resembles a gardenia), is beyond question one of the finest hardy plants in cultivation. It is waxy-white, with delicate stains of yellow, and may be likened to a rose, but in respect of resemblances comes nearest to the gardenia, both in its looks and its delicious fragrance. To grow this well, a warm position should be chosen on a rich, deep border, for if exposed to cold winds or in a poor soil it will come to no good at all.

Some remarkable hybrids of this narciss are in cultivation, bearing the collective designation of *Narcissus Burbidgei,* in honour of Mr. F. W. Burbidge, author of a valuable treatise on "The Narcissus." These hybrids have larger crowns than the true species, and some of them are highly coloured, ranging from scarlet to pure yellow, the perianth segments being white as in the species.

As we cannot often reach the beginnings of things we must take the legends as they come to us, with their surroundings of poetical fancy. But when we note the close family likeness of a group of myths, as here the story of Narcissus, and elsewhere the story of Adonis, and again that of Iris, the thought is forced upon us that some simple key may be found to explain them all. However, in these pages it will not be expected of us to enter fully into such matters. But we will, in a casual way, make an observation to illustrate the apothegm

"history repeats itself." Linnæus named the plant known as *Andromeda*, because he found it blooming in the midst of a watery waste, like Andromeda, the daughter of Cassiope, chained to the rock and assailed by sea-monsters, but sure of deliverance when Perseus (the spring) should come. In this there is fancy enough, but no myth. The flower commemorates the lady who competed with the nymphs for the prize of beauty, and it needs only one touch to transfer it from the region of fact, as regards the work of Linnæus. Let us then accomplish the transference. Linnæus did not name the flower, for its name is coeval with its existence. Andromeda was not saved by Perseus; she perished in her chains, and the flower sprang from her grave. Reverse the process, and the classic names of plants become commemorative, and all the mythical features are annihilated.

THE PELARGONIUM.

Pelargonium speciosum.

THE large-flowered pelargoniums, with lobed and wrinkled leaves, are usually described as hybrid forms of *Pelargonium speciosum*, but it would be a rash proceeding to insist on tracing all our "show," "fancy," "spotted," and "regal" pelargoniums to any one species. Indeed, it is a question now whether, of the so-called species described and figured by Sweet, Andrews, and other authors, as many as one-tenth of the whole can be considered entitled to specific distinctions. *Pelargonium speciosum*, as flowered about the year 1790, and figured in the "Monograph of Geraniums" by Andrews, has in it the making of a grand greenhouse flower. But in such pelargoniums as we now cultivate there are characters we could not hope to obtain from it; and in turning over portraits of pelargoniums, and, still better, in examining a collection of Cape species, we shall find a dozen or two that have as much "making"

in them, and that have, beyond all reasonable doubt, contributed their characters to the collective flower we call a pelargonium. If we had to make a selection from the five hundred species and varieties figured by Sweet in his "Geraniaceæ," we should lean to *P. solubile* and *P. beaufortianum* as likely to have contributed in an important degree to the fashioning of the florist's flower, because of the distinct lobing of the leaves, the breadth of their petals, and their tendency to variation of colour.

Those who are curious as to the history of the pelargonium may be advised to make a careful inspection of the extensive and beautiful collection of Cape species in the possession of the Royal Horticultural Society, in their experimental garden at Chiswick. The more distinctive and showy of these have hitherto been annually presented to public notice in connection with the exhibitions of the Pelargonium Society, and have been greatly admired. The difference between them and the magnificent flowers of the florists is so great that it seems impossible there should be any relation between them of any kind whatever. And yet the unpretending wildings, in many instances, are the real parents of the resplendent varieties that bear the names of heroes, horses, statesmen, ladies, actors, and eminent horticulturists, to distinguish them in the competitions that give life to flower-shows. Not often do we in a floral fête have presented to our view at one and the same time the wild flowers of the desert and their descendants of the garden; and this particular feature of the annual exhibition of the Pelargonium Society may be regarded as unique.

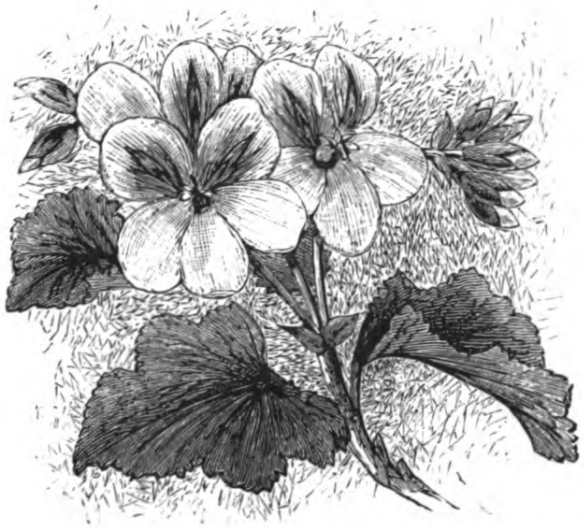
As classified for exhibition purposes, there are six kinds of pelargoniums, but for our present purpose we may consider there are but three—namely, the show varieties, sup-

posedly descendants of *P. speciosum;* the zoned, descended from *P. zonale;* and the ivy-leaved, descended from *P. lateripes.* The flower figured belongs to the first of these three classes, but would not pass muster at an exhibition, being much more of an artist's than a florist's flower, or such as the florist might regard as a "market flower," because adapted for universal appreciation.

The cultivation of these pelargoniums is a less easy matter than that of the zonales, for they are more tender in constitution, and more liable to injury by the assaults of the insect pests that for ever and everywhere haunt the gardener. A somewhat light but substantial loamy soil is required, and the pots must be drained with extra care, for the slightest lodgment of excessive moisture will injure the health of the plants. None but an expert should employ what is understood as a "rich" soil, or should use any kind of liquid manure; for, unless these aids to development are very judiciously used, they produce a disease called "spot," which is likely to destroy the plants, and is certain to ruin the bloom for at least one season. The plant-house in which they are kept should be light and airy, and throughout the winter the temperature should be considerably above the freezing-point. Therefore a temperature of, say, 35°, which the zonales endure without harm, if somewhat dry, will be too low for these, the winter minimum for which should be about 40° until the turn of the year, and then, as the days lengthen, a rise to 50° is required. In the winter management the greatest care is required in respect of watering, for damp is as destructive as frost, and the two combined will soon make an end of the finest plants, no matter how robust they may have been up to the moment when these enemies entered the field. The summer manage-

ment comprises plentiful watering in proportion to growth and temperature, free ventilation, exposure to the fullest daylight (yet with a little shade from the fiercest glare of the sun), and, after flowering, a moderate pruning, and, some three weeks afterwards, re-potting for the next year's growth. On the subject of training it is not necessary to speak, as that, to use the language of the day, is a "matter of taste." At the Pelargonium Exhibition of 1882 a place of high honour was given to a group of plants that had never been trained in any way whatever; and the judges, being men of true taste, though practitioners of conventional training, made note of the peculiar beauty of plants well grown in their "natural form!"

It may be proper to advise the inexperienced amateur that frequent or even occasional wetting of the leaves of pelargoniums is to be deprecated as injurious. As a rule, rough and hairy leaves should never be wetted, but smooth leaves are often much benefited by the process.



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DOUBLE KERRIA

DOUBLE KERRIA.

Kerria Japonica (*fl. pl.*).

AS this plant is often labelled *Corchorus Japonica*, we commence this notice by saying that it is not a corchorus, and should never be so called. The corchorus is allied to the lime-tree; the Kerria is allied to the spiræa, and is, therefore, a rosaceous plant. The leaves are quite spiræa-like; but the flower of the double variety may take us far away from spiræa, until we examine it carefully.

The Japan Kerria is named in honour of Mr. William Kerr, a collector sent out from the Royal Gardens at Kew, and some time superintendent of the Botanic Garden in Ceylon. The hardiness and beauty of the double variety, which was first introduced, made the botanists desire to obtain the single form of the plant; and Don, in the second volume of his "Dichlamydeus Plants" (p. 517), intimates that it was still unknown in 1832, when that

work was published. But it was figured in the fourth volume of Sweet's "Flower Garden" (*t.* 337), which is dated 1838, and its introduction is there ascribed to Mr. Reeves, through whom many valuable plants were secured from China and Japan for the enrichment of our gardens. Sweet reports that the double Kerria was introduced in the year 1804; but in the current works of reference the year 1700 is attached to both the single and double kinds, as though they were introduced together. However, it is, after all, of but very little consequence whether this plant, as an inmate of our gardens, dates from 1700 or 1804.

Kerria Japonica is perfectly hardy, and very accommodating. It will grow in any good border, and is usually planted next a wall; and while being trained in the ordinary way, it soon lends its supporter the adornment of its bright green leaves and golden flowers. It is not given to any great degree of variation; but a handsome large-flowered variety has lately been presented to the notice of the Royal Horticultural Society by James McIntosh, Esq., of Weybridge, and has been named, to distinguish it, "Kerria Japonica major."

The single form, as figured by Sweet, is simple and elegant, the flowers having five rounded oblong petals of a rich yellow colour, and somewhat resembling those of a potentilla. It is, we think, a matter for regret that this single flower is not to be met with in gardens generally; indeed, we doubt if it could be easily found in the botanic gardens, so little attention has it hitherto obtained.

To propagate the Kerria is an easy matter. The old wood is of no use for the purpose. Young shoots, when

just becoming firm, may be cut off at a joint, and planted firmly in a pot filled with sandy loam, and covered with a bell-glass. These will need an occasional sprinkling of water to keep them fresh; but the soil should not be more than moderately moist, or the cuttings will rot. In the course of about three weeks roots will be formed, and then the glass may be removed. Plants of this kind should be grown in pots for a year, and then be planted out where they are to remain.

There are many fine subjects available for the clothing of a warm wall that cannot be advantageously grown any other way. Those who can command a sheltered situation and a good deep, well-drained border, may festoon their walls with some splendid examples of exotic vegetation. One of the finest plants for the purpose is the *Bignonia radicans*, the "trumpet-flowered ash," a North American plant; and there is a near relative, *Tecoma grandiflora*, a native of Northern Asia. These have trumpet-shaped flowers, richly coloured scarlet and yellow. The *Wistaria sinensis*, though well known, is not so often to be seen as one would wish, considering how many grimy walls there are in the world, and how easy it is to make them beautiful. *Bomarea salsilla* may be called the climbing lily, although it is not a lily, but an amaryllid. It will run from five to seven feet, and produce pretty clusters of purple flowers. *Clianthus puniceus*, the glory pea of New Zealand, is a grand wall plant for the western counties. The flowers are curious and splendid, and may be likened to lobster claws in form and colour. *Magnolia grandiflora* is, perhaps, the finest of all the wall plants that are hardy enough to bear twenty degrees of frost. This it will bear, but no more, and therefore it is only in the southern and western coun-

ties that the evergreen magnolia acquires age enough to flower freely.

But while these and many more fine subjects are at our command, it must never be forgotten that we have clematis, roses, pyracanthas, jasmines, cotoneasters, creepers, ivies, and many more glorious wall plants that twenty degrees of frost will not touch; and the prudent planter will take care to secure some of the handsomest and hardiest subjects before incurring risk with those that are in some degree tender.

OXLIP

THE OXLIP.

Primula elatior.

ALTHOUGH the primrose, the cowslip, and the oxlip are beyond all reasonable doubt variations of one typical plant, it is convenient to follow the books in regarding them as three distinct species. Between the common primrose and the other two there is an obvious difference in the disposition of the flowers—those of the first appearing singly from amongst the leaves; those of the cowslip and oxlip appearing in compact clusters or umbels on the summit of a common stem which rises above the leaves. This difference, though obvious and a reason for accepted specific distinctions, is after all one of degree only, and not of kind, for when the primrose is carefully examined, it will be found that each separate flower is on a long peduncle that springs from a common stalk which is simply too short to be seen until searched for, but is then easily discovered. Linnæus had noted all this, and regarded the three plants as varieties of one common type. But succeeding botanists

rejected his view, and thus they were made to rank as species. Now, however, the view of Linnæus once more prevails, and we find no difficulty in accepting it. Occasionally a common primrose will assume the cowslip and oxlip mode of flowering, the common stem rising above the leaves and displaying all the flowers as members of an umbel. And on the other hand, oxlips and cowslips will occasionally produce short stems with long peduncles, so that the flowers appear singly. In the garden the variations that occur are of the most interesting nature, and instructively illustrate the speculations of the botanists.

The primrose is a hedgebank flower, loving woods, partial shade, and a moist soil. The cowslip is a pasture flower, loving a somewhat dry soil and full exposure. It has small and comparatively unattractive flowers, which, however, are capable of remarkable modifications when taken in hand by the florist, for the cowslip doubtless is the parent of the polyanthus, and some intermediate forms that find favour in gardens. The oxlip is very closely allied to the cowslip, but differs in having a broader and flatter flower. As a wilding it is usually met with in more luxuriant pastures than the cowslip; it loves moisture, but does not thrive in the shade, where the primrose is usually at home. As a garden plant it requires a rich soil, and it suffers much if very dry at the root for any length of time in high summer. Consequently frame culture suits the better kinds more thoroughly than border culture, because frame plants obtain more constant attention than those in borders, and the regular supplies of water through the summer tend very much to insure the rich and abundant bloom that renders these plants so delightful in the spring.

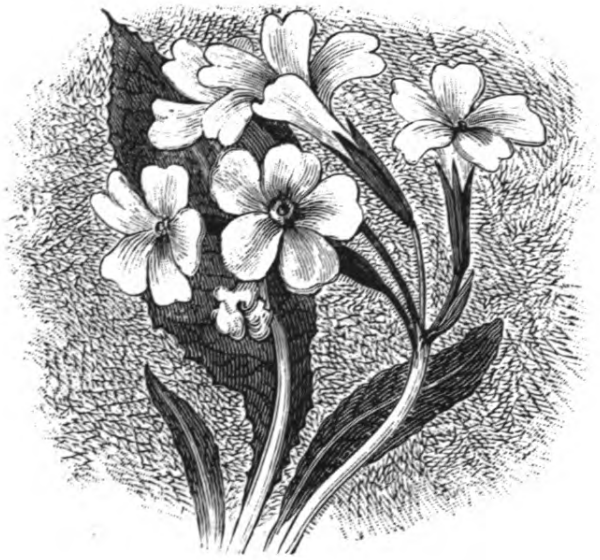
As woodland and mixed border plants the primroses and

oxlips are of the greatest value, but they are not so well adapted for the dressed grounds, because their flowering is soon over, and when they thrive as they should they become somewhat coarse in leafage as the summer advances. It is known to but few how many splendid varieties are available for the garden, and how particularly worthy of pot culture are many of the named kinds. Their sparkling freshness of colour is promoted by frame culture by reason of the shelter secured at the time the dry east winds prevail, when these plants are liable to serious injury, and we can the least afford to lose a leaf or flower. When so grown they require a light rich soil, and carefully packed drainage, and to be kept always much exposed to the weather save when severe frost or east winds prevail. When planted out in the shrubbery borders any fairly good soil will suit them. A collection of choice sorts should have a prepared border in any case where a doubt may arise as to the suitability of the natural soil for them. We have found all the sorts thrive on a heavy clay, but we have had losses through planting in positions much exposed to strong sunshine, east wind, and summer drought. Occasionally when killed down by summer heat, they will in the cool autumn renew themselves from the root, but it is safer to shade them and help them through with water, and safer still to insure them the permanent shade of trees and shrubs, but in a position partially open to all the winds of heaven.

The raising of plants from seed is a business requiring care. It is best to sow the seed in pans filled with light compost, covering the seed with a mere dusting of soil, and then taking care that it never becomes quite dry. A light sprinkling of moss will be useful to check evaporation, but

must be removed as soon as the plants appear. It is best to sow the seed as soon as it can be gathered ripe, but it may be kept until spring. Named sorts are multiplied by dividing the roots, but this should not be attempted until the plants have acquired some age, for if young plants are cut up, it is only too likely that all the pieces will be lost. Large old plants may, however, be divided with safety in the autumn.

"Sequester'd nature was his heart's delight;
Him would she lead through wood and lonely plain,
Searching the booty from the rushy dyke;
And while the thrush sang her long-silenc'd strain,
He thought it sweet and mock'd it o'er again.
And while he plucked the primrose in its pride,
He ponder'd o'er its bloom 'tween joy and pain;
And a rude sonnet in its praise he tried,
Where nature's simple way the aid of art supplied."



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NEMOPHILA.

BLUE NEMOPHILA.

Nemophila insignis.

IT would be a difficult task to find a more familiar garden flower than the blue nemophila; for it is one of the first favourites of the amateur gardener, and never ceases—as some first favourites do—to retain a hold upon his affections, even when he has bloomed into the veteran horticulturist. The beginner may doat upon the clumps of lovely blue flowers that appear in the borders where, for the first time in his life, he has sown some seeds; but if he goes on as he began, taking constant interest in flowers, he may chance to see this same plant in a shape that tells emphatically its popularity. On all the great flower-seed farms it is grown in astonishing quantities, and the growers amuse their visitors by measuring the lines to state the sum-total in parts of a mile. The last measurement we witnessed amounted to three-quarters of a mile.

This plant represents a series of hardy annuals obtained from California in the early days of exploration in the "Far West," by David Douglas, who was sent out by the Horticultural Society of London to secure new floral treasures for British gardens. He was eminently successful, for he not only collected plants that have proved of immense value in this country, but he also contributed important papers to the "Horticultural Transactions" and to other publications of his time. This man ranks amongst the "martyrs of science," and the very best of our hardy annuals may be regarded as memorials of his honourable labours and of his unhappy end. He was born in Scotland in the year 1798, and early in life devoted his mind to the science of botany. Being in the employ of the Horticultural Society as a plant-collector, he explored the Columbia River and California in the years 1825 to 1827, securing in the interest of British horticulture a great many of our now most valued hardy plants. From the Pacific coast he proceeded to the Sandwich Islands, where he met with a dreadful death on the 12th of July, 1834. It was the custom then in the Sandwich Islands to capture wild cattle by means of pitfalls. Into one of these pits the unhappy Douglas fell, and, meeting there a captured bullock, was attacked by the beast and gored to death, no help being near and nothing being known of the event until the next day.

The nemophilas, eschscholtzias, gilias, collinsias, and the rest of the Californian annuals, make a finer growth and richer bloom when sown in autumn than when sown in spring. The best mode of procedure is to sow at the end of August or early in September, on poor, dry ground; and during severe winter weather put evergreen boughs over the

beds to afford a slight protection. If the plants are not too thick in the beds, and do not become at any time excessively wet through defective drainage, they will pass through the winter with but little harm; but if crowded or damp, the frost will seriously reduce their numbers. Early in the spring they should be lifted in patches and carefully transplanted to well-prepared beds of rich soil, and there remain to flower. The way of their flowering under such treatment will surprise those who know them only as sown in spring and left in crowds to struggle for light and air, to finish their career with a mere apology for their proper flowers.

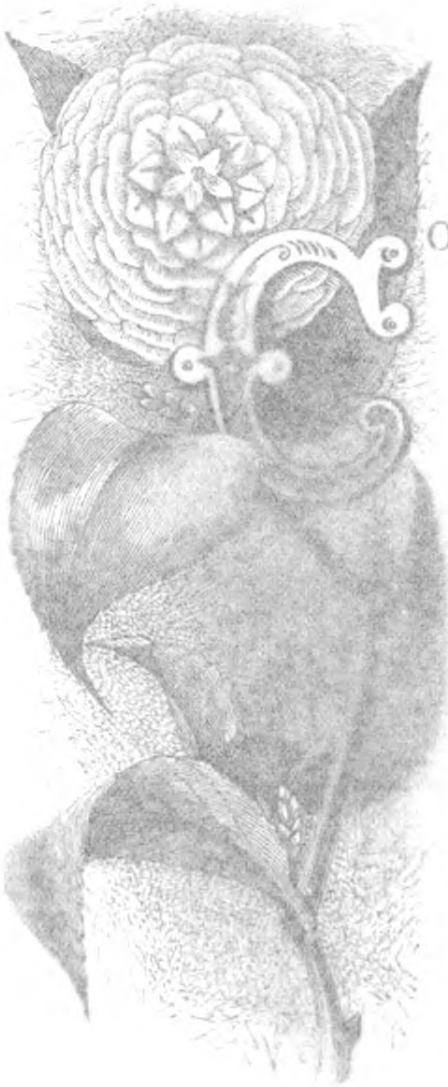
But spring-sown annuals may be made to render honourable service by sowing in February or March on soil well broken up and liberally manured, and by taking special care to thin the plants so that they do not anywhere touch or overlap their leafage. It is truly astounding to see patches of annuals grown in the customary way by inexperienced amateurs, for they usually leave a hundred or so of plants where there is, perhaps, proper room for only one; and of course they begin the business by sowing the seed in the most prodigal manner, as though the seed itself should embellish the ground.

The nemophilas are quite worthy of pot-culture for the decoration of the conservatory and the window. The pots should be filled with rich light soil, and only about three plants should be allowed in a pot of five inches diameter, which is the best size to grow them in. The garden nemophilas have to take their share of sunshine, and it does not harm them; but those sown in pots should be shaded from the mid-day sun on bright days, as they cannot so well endure the strong light. These sweet little

flowers belong more to the grove than the open prairie, and when grown under glass, as pot plants should be, full sunshine is hurtful to them.

The best nemophila for all general purposes is the one here figured. There are several varieties of it in commerce, such as *grandiflora*, with larger flowers, and *striata*, with striped flowers. *Nemophila atomaria* has white flowers dotted with blue specks; *N. aurita* has violet flowers, smaller than those of *N. insignis*; *N. discoidalis* is a showy plant with dark flowers margined with white; and *N. maculata* has white flowers blotched with purple.

The seed-growers have long been hoping to obtain a scarlet nemophila, and they have made some progress towards it in the variety known as *Insignis purpurea rubra*, but there is doubtless much to be done ere the hope is realised. Quite recently an interesting novelty has appeared called the *golden-leaved maculata*, which has leaves blotched with yellow variegation. There are about twenty varieties of nemophila in cultivation, of which the first-named half-dozen are the best.



THE CAMELLIA.

Camellia Japonica.

COMMEMORATIVE names so abound in catalogues of plants that a garden may be regarded, not only as a selected portion of the book of nature, but also of the book of men. A large proportion of our most valued plants are, by virtue of the familiar names they bear, living memorials of the masters of the world, whose names a grateful posterity would not willingly let die, and has therefore associated them with things that may be regarded as everlasting; for Nature will take care of her own children, even when our neglect may have exposed them to the danger of extinction.

The camellia bears a commemorative name. George Joseph Camellus, or Kamel, was a Moravian Jesuit, and travelled in Asia. Being a botanist and a careful collector of curiosities, he wrote an admirable monograph on the vegetation of the Isle of Luzon, the most northerly of the

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Philippines. This work our great John Ray, the forerunner of the greater Linnæus, embodied in his "History of Plants."

That the *Camellia Japonica* is the grandest of our conservatory and garden shrubs the reader of this sketch does not need to be informed, and in the brief space at our command we will endeavour to do better than eulogise its beauty. The plant was introduced to this country by Lord Petre some time before the year 1739, and the first plants were killed by being placed in too high a temperature. Thus at the very first start a lesson was learned, and in the same direction there is yet another lesson to be learned, as will be stated presently. On turning to that treasury of things new and old, the *Botanical Magazine,* we find a figure of the camellia in the volume published in 1790, the number of the figure being 42. From the accompanying notice we learn that it had then been several times figured, as by Thunberg, in his "Flora of Japan," *t.* 273, by Kæmpfer, in his "Amænitates," *t.* 851, and in other works. Its original and proper name is *Camellia Japonica,* but it has been also called *Tsubaki, Rosa Chinensis,* and *Thea Chinensis.* The last-cited name makes occasion for the remark that the tea-plant is closely allied to the camellia, and several sorts of true camellia are available as tea-plants. Those who can take interest in the economical view of the subject will not object to be told that the leaves of *Camellia sasangua* are dried to mix with tea for the communication to it of a grateful odour. A Nepaul species, known as *Camellia kissi,* is so much characterised by the flavour and odour of tea, that it might be employed for the same purpose. But the true tea-plant (*Thea*) is so hardy, and possesses in such a striking manner the properties for the sake of which tea is

consumed, that the camellias may be very properly neglected as possible tea-plants that nobody wants.

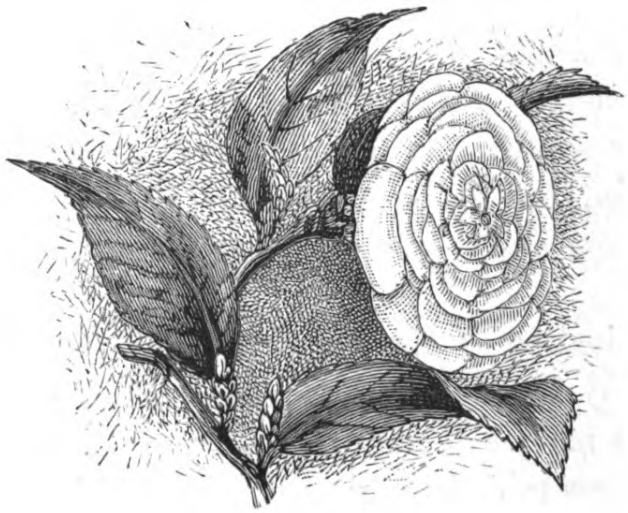
Another matter of some interest is that the camellia displays but a shadow of its true beauty when grown as a pot-plant, but has no equal for massive grandeur of leafage and floral splendour in its season when planted out in a spacious conservatory, and encouraged to grow freely, with scarcely any pruning, and subjected to no more artificial heat than suffices to keep the plants safe from frost.

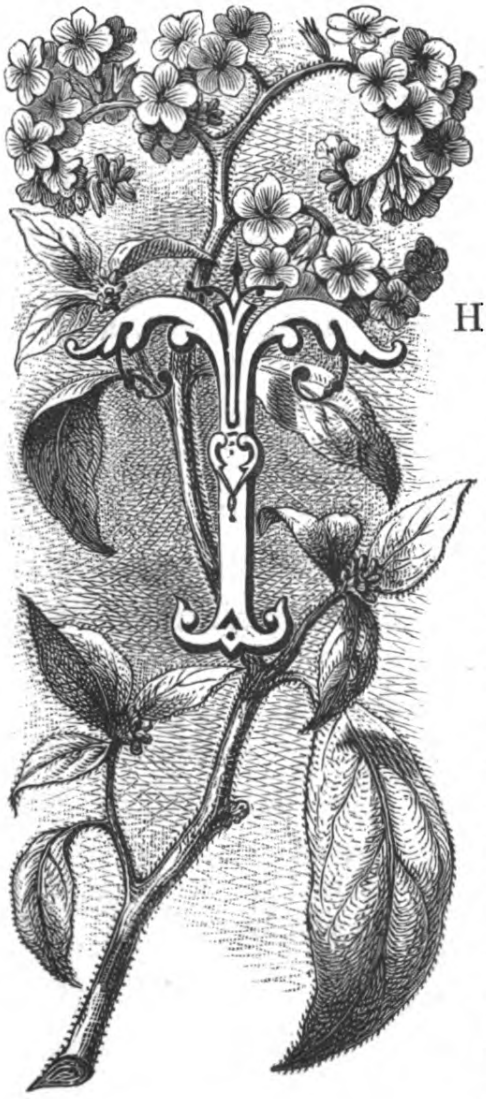
And this brings us to the next chapter in this short treatise, and the purport of this chapter is to declare that the camellia is so hardy that it may be grown in the open ground in all fairly favourable spots on the southern side of the Trent, and even far to the north of the Solway, in the moist warm valleys of the western coasts, where the waters of the Atlantic bring with them some of the spare warmth of the Gulf Stream. Throughout Dorset, Somerset, Devon, and Cornwall, the camellia only needs to be sheltered from strong winds to thrive perfectly without any special care, and a north-by-west aspect appears to suit it better than east or south. As a wall-tree it answers as well as any magnolia, but it is still better situated if standing far away from walls, yet enjoying shelter, with free air and light.

The cultivation of the camellia cannot be dismissed in the usual way by saying it is a very simple matter. In truth, it is a matter of some difficulty to do the thing well, for any serious mistake will result in the shedding of the flower-buds just at the time when they should be opening into flowers, while systematic mismanagement will result in a poor growth, naked stems, diseased leaves, and an absence of flowers. The chief point in the management is the

watering. If the soil becomes sour with stagnant water, mischief must follow; and if the roots are dry for any length of time, the flower-buds will be likely to drop. As for the soil, there is nothing so suitable as a stout, friable, yellow loam, full of fibre from rotted turf. Clay, chalk, and sand are all unfit for the camellia, but a good peat soil answers very well, especially for making beds for planting out camellias, when a nice friable, fibrous loam is not obtainable.

The variety figured is the one known as *Donckelaari*. It is one of the best for the conservatory. The following also are fine varieties, and the most useful amongst hundreds: *Double White, Alexina, Beali, Countess of Ellesmere, Jenny Lind, Lavinia Maggi, Leopold I., Valtavareda, Giardino Santarelli.*





THE HELIOTROPE.

Heliotropium corymbosum.

THE heliotrope is in some form or other one of the most ancient of flowers; but the one before us, being a native of Peru, is of necessity modern, its introduction dating from the year 1800. In former papers on marigolds and sunflowers we have remarked that *all* flowers are sunflowers more or less, because they look towards the sun; and hence it is that many, such as the minor convolvulus and the tigridia (to name only two out of thousands), can only be seen to advantage when they are on the north side of the spectator—a matter of some importance in the arrangement of gardens. But, not to go into that larger matter, we have before us now a heliotrope the name of which no one can account for. It is the turnsole of the garden—the flower that turns to King Sol; but it has no special claim to be so distinguished. There is, indeed, another Peruvian plant that has a claim, and it is the helianthus, the yellow

sunflower that has become a symbol of solar glory in Peruvian art; in modern æstheticism it stands for art and taste generally, while on the village signboard it signifies that the sun is always shining for people who are thirsty and have money in their pockets.

Probably neither the botanist nor the archæologist nor the student of Ovid can tell us what was the flower to which Clytie was changed when she died of love for glorious Apollo. But of course it was a sunflower, and one that

> "Turns to her god when he sets
> The same look which she turned when he rose."

The reader will easily find the story in the fourth book of the "Metamorphoses." But the translation by Sandys may not be at hand; and as it has a certain quaintness, an extract may be seasonable here :—

> "She with distracted passion dies away,
> Detesteth company; all night, all day,
> Disrobed, with her ruffled hair unbound,
> And wet with humour, sits upon the ground:
> For nine long days all sustenance forbears;
> Her hunger cloy'd with dew, her thirst with tears:
> Nor rose; but rivets on the god her eyes,
> And ever turns her face to him that flies.
> At length, to earth her stupid body cleaves:
> Her wan complexion turns to bloodless leaves,
> Yet streak'd with red; her perish'd limbs beget
> *A flower, resembling the pale violet;*
> Which, with the sun, though rooted fast, doth move;
> And being changed, changeth not her love."

We seem here to have the story of Venus and Adonis modified, and with a tamer climax; but it brings us to the flower before us, which may be said to "resemble the violet" in its colour, its odour, and its domestic tone of

unobtrusive beauty. It was the favourite flower of Margaret Fuller, as the carbuncle was her favourite stone; for that strong-minded woman believed in omens and symbols, and possibly in amulets, to avert the evil eye. And it is fit to serve as a symbol or an emblem, as to many who are less romantic than the Marchesa d'Ossoli it is a reminder of cherry-pie, apple-pie, and essence of bitter almonds. There is a point where poetry and prose must meet, and we suppose it to be somewhere in the region of facts; and in that region the heliotrope is an interesting beauty, and one of the most desirable plants wherewith to perfume a conservatory or a garden, or to fill a button-hole.

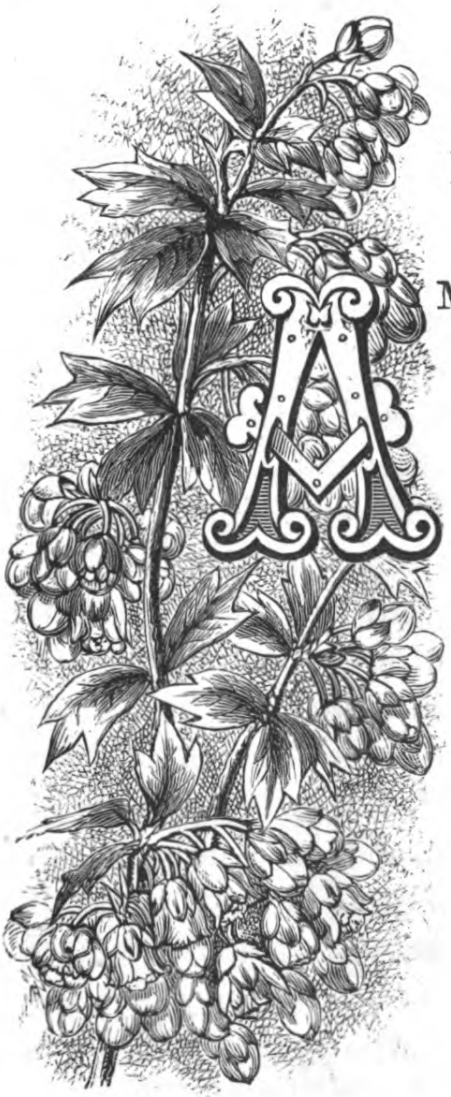
The place in which the heliotrope displays its qualities best is on the wall of a warm conservatory, where it will reach a height of four, six, or even ten feet, and produce its fragrant flowers all the winter long. It is best known as a bedding plant in the flower-garden, where it sweetens the evening breeze most delicately. For whatever purpose it may be grown, it should be treated as a tender greenhouse plant. It is less hardy than the pelargonium, the calceolaria, and the petunia; it should therefore be planted last and taken up first, for the slightest touch of frost may be fatal to it. But, having sufficient warmth, it is a very accommodating plant, growing freely in any good soil, and best in a rich light loam. The varieties are mostly of compact habit and dwarf growth, and do not, therefore, need any pinching and training when planted out, but may be left to spread and flower in their own way.

To raise a stock of heliotropes for bedding, it is necessary to put a few old plants into a moderate heat soon after the turn of the year; and when these bristle with new shoots, cuttings may be taken and struck in a

temperature of 70°. The light, sandy mixture commonly used in the propagation of plants in spring may be employed; and as soon as the cuttings have begun to grow freely, they should be potted separately in small pots, or be pricked out into large shallow boxes. To plant them out before June will be to expose them to the risk of damage. At all events, the 25th of May should be seen safely past ere they are committed to the ground, for that is the latest date on which a spring frost has been experienced. When growing freely, heliotropes require more moisture than pelargoniums or petunias; therefore it will be well, during hot dry weather, to supply them with water liberally.

Amongst the garden varieties, the best are *Duchess of Edinburgh*, *Bouquet des Violettes*, *Jersey Beauty*, *Morceau*, *Bouquet Perfume*, and *White Lady*.

IN'S BARBE



DARWIN'S BARBERRY.

Berberis Darwini.

AMONGST the many memorials of the great Darwin that we find in books and museums and gardens, there is none that speaks more plainly of him than the plant before us. It takes us into the heart of that most delightful of all his books, the "Journal of Researches" during the voyage of the *Beagle*. As a garden shrub it stands almost alone for hardiness, elegance, brightness, and usefulness; for it is equally adapted to adorn the terrace garden, or to afford covert to game. As a plant of history, too, although it was certainly unknown to the ancients, it in a similar manner may be said to stand alone; for it was discovered by Mr. Darwin in that memorable voyage of his, which may be regarded as the second discovery of the great New World. In the entries of the "journal" for the year 1834, when Darwin explored Tierra del Fuego and the south-

west coast, he describes the forests and the vegetation as representing an equable climate, somewhat colder generally than that of places corresponding in latitude in the northern hemisphere. He says: "In Chiloe (corresponding in latitude with the northern parts of Spain) the peach seldom produces fruit, whilst strawberries and apples thrive to perfection. Even the crops of barley and wheat are often brought into the houses to be dried and ripened. At Valdivia (in the same latitude of 40° with Madrid) grapes and figs ripen, but are not common; olives seldom ripen even partially, and oranges not at all. . . Although the humid and equable climate of Chiloe, and of the coast northward and southward of it, is so unfavourable to our fruits, yet the native forests, from lat. 45° to 38°, almost rival in luxuriance those of the glowing inter-tropical regions."

From the foregoing extract it will be understood that Darwin's barberry as a garden plant is particularly adapted for our western counties. Such is, indeed, the fact; but, happily, it thrives to perfection in the near neighbourhood of London and far away northward, always best in a moist air, with shelter from east winds, and in a deep, moist, mellow soil, but whether this be of peat or loam seems of little consequence. One of the most enjoyable features of a garden we have ever worked out is our barberry plot, the plants being in beds of peat on a large half-shaded lawn, and comprising all the species and varieties of the genus *Berberis* that are known as sufficiently hardy for the climate of London; and amongst these the glistening *Berberis Darwini* is conspicuous for its beauty, although, as attractive plants, the elegant *B. stenophylla* and the dwarf and distinct *B. glumacea* compete with it for praise, and are found to obtain a share.

This barberry was introduced to our gardens by those eminent benefactors, the Messrs. Veitch, through their very successful collector, Mr. Lobb, whose name goes down to posterity with *Tropæolum Lobbianum*. As regards its hardiness, it appears in all the southern counties to have survived unhurt the two dreadful winters of 1879–80 and 1880–81. In its native forests it grows near the limit of the summer line of snow, but it is less hardy here than there, because here it has to contend with dry east winds in spring, and with bitter frosts suddenly succeeding sultry weather—circumstances unknown to it in its own humid, equable climate. But it is so hardy, so thrifty, so accommodating, that we will say no more of its peculiarities, lest it should appear to need much, when in truth it needs but little.

The fruits of the earth do not obtain any special attention in these pages, for they rarely present themselves as proper subjects. But we have now to say that Darwin's barberry presents a most beautiful appearance when loaded with its grape-like fruits, and that these are much used in Devonshire in the preparation of a brisk flavoured conserve.

A barberry garden has been mentioned above. The barberries may with advantage be scattered over a place, but they are peculiarly well adapted for planting in groups. Ours are in a series of large circular beds of peat, on a moist, partially-shaded lawn near the house, where interesting evergreen shrubs are peculiarly suitable. The centres of the beds are occupied with the noble *B. japonica*, *B. Beali*, and *B. intermedia*. Around them are such as *B. dulcis*, *B. stenophylla*, *B. fascicularis*, and *B. Asiatica*. The marginal planting comprises *B. Hookeri*, *B. glumacea*, *B. repens*, and a lovely variety of the common holly-leaved berberis,

the garden name of which is *Berberis aquifolia undulata nana*. The common form of *B. aquifolia* is not good enough for such a plantation as we are now describing, and we find the best use for it to be as a facing to a holly-hedge, where it shows its winter colours to great advantage.

A remarkable species of barberry, named *Berberis trifoliata*, may here be commended as a clothing for a warm dwarf wall. Its leaves are peculiarly rigid, thrice divided, of a curious shade of bronze or purple green colour. The flowers, like those of other species, are yellow.

CORN-FLOWER.

Centaurea cyanus.

THE two names by which this plant is known to the happy peasant, corn-flower and blue-bottle, demand no explanatory disquisition. Before the flower expands, the ovoid involucre bears a very fair resemblance to a bottle, but the completion of the growth makes a great change in the general configuration, the resplendent blue florets forming a series of stars, so that the bottle is now hidden by its adornments. As a garden plant it varies much in colour, and a pale variety has been selected for the present figure.

This occasional occupant of the corn-fields is regarded by the botanists as of South European or West Asiatic origin, having been spread abroad from its original habitat by commerce. It has had the good fortune, owing doubtless to its conspicuous beauty, to be recognised by all who have written about plants. In Hippocrates it figures as an

astringent herb, which may be infused in wine as a corroborant. In Turner's Herbal (1568) it is thus introduced to us :—" Blewbottel, otherwise caled Blewblawe, is named in Greek, Kyanos ; in Latin, Cyanus, or Ceruleus ; in Duche, Blaw Cornblumen ; in Frenche, au fioin, or blaueole, or bleuet. Some herbaries call it baptisecula, or blaptisecula, because it hurteth sicles, which were ones called of olde writers seculae." After a few words of description Turner gives us two touches of romance, thus :—" About midsummer the chylder use to make garlandes of the floure. It groweth much amongst rye, wherefore I thinke that goode rye in an euell and vnseasonable yere doth go out of kinde into this wede." But it was quite a common belief of the time that a plant might, in growing, change its nature without the aid of the ages and the slow-working influences required by the modern doctrine of evolution. The staying of the sickle by the corn-flower is noticed by many of the old writers. Gerarde calls it "hurt sickle," and saith "it hindereth and annoieth the reapers by dulling and turning the edges of their sickles in reaping of corne."

Whether the old generic and specific name *Cyanus* be commemorative of a beautiful youth, or whether it refers directly to the blue colour of this flower, we would not venture to declare. Cyanus is the name of this flower, and cyaneus colour is necessarily a blue colour. The juice of this flower, treated with alum, yields a beautiful blue dye, which, however, is now scarcely known in the arts, because long since superseded. Thus, our plant is excluded from the utilities, unless we reckon as one of them what is said by Turner, that "about midsummer the chylder use to make garlandes of the floure." However, there is a large con-

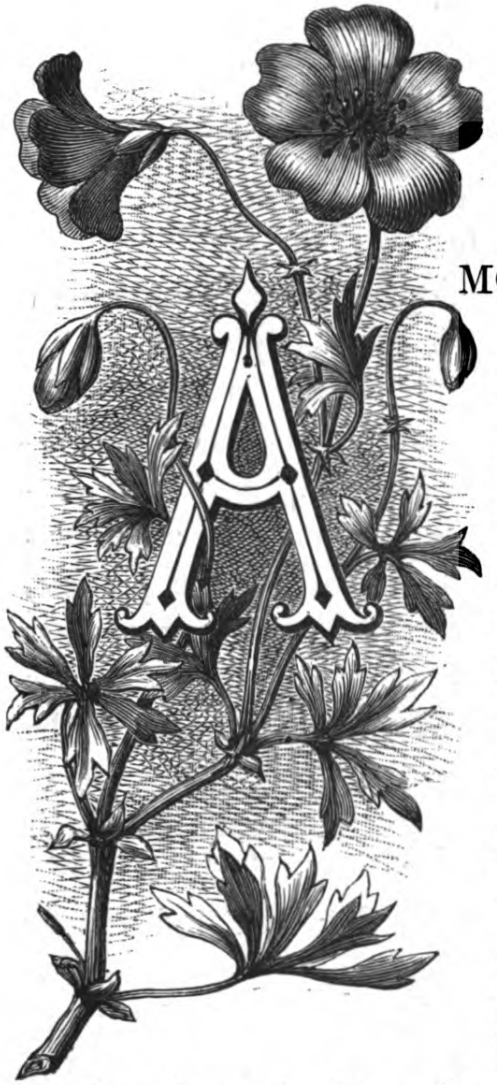
stituency to vindicate the flower on the ground of the most commonplace usefulness, for it supplies breakfast, dinner, and tea to any number of bees and butterflies, which literally rush upon it, so that to the butterfly collector it often proves a profitable decoy. The Painted Lady, amongst many others, has a particular liking for the hypothetical beautiful youth.

Amongst the hardy annuals that will bloom abundantly in any kind of soil in a sunny garden there are four good blue-bottles—namely, *C. cyanus*, now before us, the height of the plant two to three feet, silvery in stem and leaf, the flowers varying in colour from white to dark purple; *C. crocodylum*, the crocodile flower, the plant averaging from one to two feet in height, the flowers being purple and white; *C. depressa*, which is never depressed in spirits, but only in stature, being but one foot high—a silvery plant, with flowers rather less showy than those of our great, true, weedy, and wonderful "corn-flower;" and *C. involucrata*, a very involved crater, the involucre curious in structure, the flowers yellow. The last-named is a somewhat ugly thing, that the florist may with propriety hand over to the botanists and the artists.

The perennial centaureas comprise a few fine plants, such as *C. Babylonica*, a gaunt grey weedy herb, like the tower of Babel, of noble stature, bearing unattractive yellow flowers; a truly fine plant for the shrubbery, and a proper companion to any of the mulleins; *C. dealbata*, a neat silvery-leaved plant, bearing red flowers that serve as sham rubies to set off the lustre of the "albata plate;" *C. montana*, a good border plant, producing flowers like those of *C. cyanus*, but larger, and with a wider range of colour in its variations.

The tender centaureas are valued for summer bedding on account of their pure silvery or bluish tinted white foliage. The best of them are—*C. ragusina, C. argentea,* and *C. gymnocarpa.* These are very easy of culture if kept somewhat dry during winter in an airy pit or greenhouse. They are multiplied by cuttings in the usual way of bedding plants, and require careful management to prevent losses through any excess of moisture.

WILD GERANIUM.



THE WILD GERANIUM.

Geranium sanguineum.

AMONGST the many British plants that have found a permanent home in the garden, none is more worthy of it than this. A happy tourist who may trouble to keep his eyes open while riding by rail from Furness to Whitehaven may obtain without cost a good practical lesson on the cultivation of this beauty. On nearing St. Bees there will be seen in the months of July and August vast sheets of crimson flowers, in some places running up into the sandhills, in others coming down to the railway line, and actually touching the rails themselves. The intensity of the colour of these flowers and their exceeding profusion constitute a great surprise for one versed in plants, but not often privileged to see *Geranium sanguineum* in its highest state of development.

And this lesson is of larger value than may at first

appear. Fully nine-tenths of all the smaller flowering plants that are prized in gardens belong to sandy, calcareous, or peaty soils. A very small proportion, and those of a somewhat rank habit of growth, belong to the heavy loams and the deep clays. Those smaller plants with large and lustrous flowers love light, moisture, pure air, a free soil, in which their roots can run freely; but stagnant moisture at their roots and a pasty soil are unfavourable to their full development, and sometimes forbid them to live. Thus we have explained to us that in the London garden, and in any other garden where the soil is heavy and damp, and the atmosphere particularly impure, this crimson geranium becomes rank in growth, and produces but few and pale-coloured flowers. And the final lesson, for the present, is, that in forming rockeries for such plants, we must insure perfect drainage, so that the soil may never be water-logged; and provide for the principal bulk of the smaller plants a soil consisting of sandy loam, mere siliceous grit being in many cases necessary to their well-being.

Our wild geraniums are a pretty lot, and find favour with the cultivators of rustic plants. In the books the geraniums are classed as crane's-bills, to distinguish them from pelargoniums, which are stork's-bills, and the erodiums, which have heron's-bills; these descriptive names referring to the resemblance of the seeds to the long-pointed bill of a bird. The dusky crane's-bill (*Geranium phæum*), the knotty crane's-bill (*G. nodosum*), the meadow crane's-bill (*G. pratense*), and the shining crane's-bill (*G. lucidum*) are all good garden plants, the last but one in the list being remarkably handsome when well

grown. The meadow crane's-bill loves a rich damp soil, and is often semi-aquatic. One of the best places in the world to see it in perfection is Darley Dale, Derbyshire; but it is more often seen in the Yorkshire dales, and is not uncommon in Cumberland. The smaller and more alpine-habited crane's-bills, like the crimson one that gives occasion for these remarks, require a sandy and stony soil. The shining crane's-bill is often seen on ruins and cottage roofs, showing how it loves a dry situation. The Herb-Robert (*G. Robertianum*) is of similar habit, loving the rocks, and making a most delicate display of colour on them.

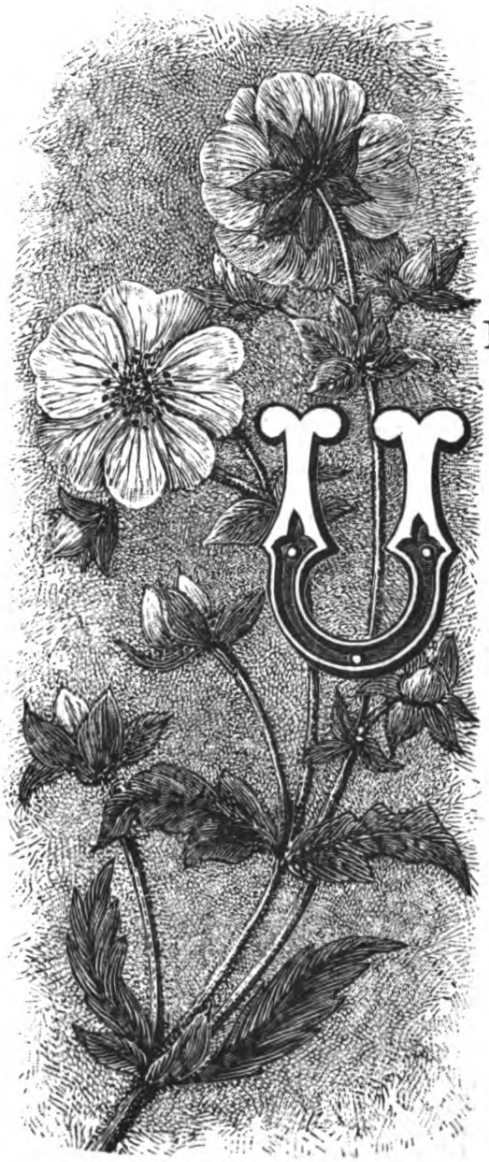
Amongst the hardy geraniums that may be added to the foregoing to make a small and interesting collection, the following are of special value for their beauty:—The grey crane's-bill (*G. cinereum*), the iberian (*G. ibericum*), the long-rooted (*G. macrorhizum*), Lambert's (*G. Lamberti*), the broad-petalled (*G. platypetalum*), and the striped (*G. striatum*). These are all showy plants of accommodating constitution, thriving best in deep sandy loam. The best geranium for London is probably the white-flowering (*G. aconitifolium*), which forms a stout bush, and flowers abundantly.

A selection of erodiums should come in here, for whoever cares to grow one lot will not the less care to grow the other. The best of them for the garden are the showy heron's-bill (*Erodium manescavi*), the fairy heron's-bill, (*E. Reichardi*), the Roman (*E. romanum*), the rock (*E. petræum*), and the caraway-leaved (*E. caruifolium*). These require, like the last-named group, a dry sandy or calcareous soil, and full exposure to air and sunshine.

The amateur who has become interested in the hardy

geraniums will in due time sigh for hardy pelargoniums, and it happens that there is one that may be so called, for it is a frame plant in London, but will endure the winter in the open border in favourable parts of Devonshire and Cornwall. This is *Pelargonium endlicherianum,* a very interesting plant with distinctive leafage, and curious flowers that appear to have but two petals, for the remaining three are so small as to be practically invisible. A genuine lover of plants will find much to interest him in the ways and manners of this hardy pelargonium. There is yet another that is so nearly hardy that frame-culture will generally suffice for it, and as regards interest it surpasses the one just named. It is *Pelargonium triste,* the melancholy stork's-bill, the flowers of which are fragrant at night only.

GARDEN AVENS.



GARDEN AVENS.

Potentilla alpestris.

UNDER the genus *Geum* a garden avens should certainly be ranked, but this, though very nearly allied, is not strictly an avens, but a cinquefoil, and its botanical name is *Potentilla alpestris*, otherwise the orange alpine cinquefoil, occasionally registered as *Potentilla salisburgensis*. It is also known as the mountain cinquefoil, and may be looked for hopefully on mountains in the north of England and North Wales, and on the Breadalbane and Clova mountains in Scotland. Where it occurs there will usually also be found the smaller spring cinquefoil, *Potentilla verna*, a very variable plant, which is often so like this *P. alpestris* that by many botanists the two are considered as forms of one and the same species. They are proper plants for the garden, and more especially for the rockery, needing always a moist soil and a sunny

situation. The indented petals, the acute segments of the calyx—which sometimes exceed the length of the petals—the five-divided root-leaves, and three-divided stem-leaves, are signs by which this pretty plant may be known, and of which *P. verna* may be regarded as a small edition. Another near relation is *Potentilla anserina*, or goose-grass, a most beautiful plant, that geese have the good sense to appreciate, for they eat it, as the books say, "with avidity." The roots of this potentilla have been eaten as bread in times of scarcity in Northern Europe, and in places where the plant grows with vigour they are worth cooking as a table vegetable. As a garden plant *Potentilla anserina* has considerable merit; its silvery leaves are beautiful, and the yellow flowers are peculiar in texture, and their colour singularly pure. *Potentilla splendens* and *P. gracilis* closely resemble *P. alpestris*.

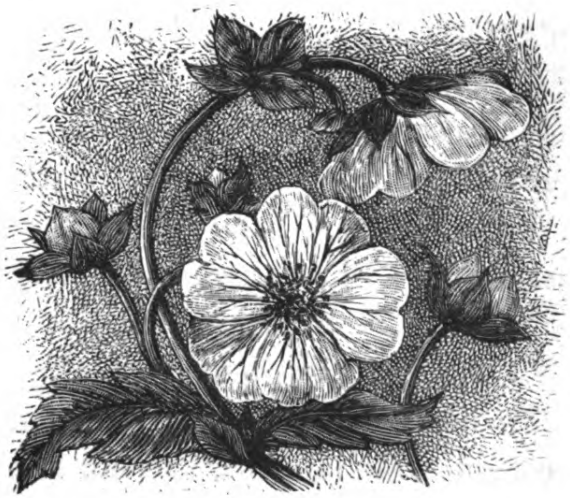
Having thus stumbled into the midst of the potentillas, we shall embrace the opportunity to recommend *P. pyrenaica*, a fine plant, bearing golden flowers; *P. nitida*, a silvery-leaved plant with extremely pretty rose-coloured flowers; and *P. calabrica*, also silvery-leaved with yellow flowers. But the glory of this family is *P. atrosanguinea*, the blood-red cinquefoil, that the florists have toyed with until they have secured many showy varieties with scarlet, crimson, orange, and purple-coloured flowers of the most brilliant character, and all of them adapted for growing in the common border. The common avens, or Herb-Bennet, of the English woods, *Geum urbanum*, although not good enough for the garden, bears a near resemblance to the plant before us. At certain times it is decidedly pretty, but its petals fall so soon that, unless we see it in a certain state of

freshness, which lasts but a short time, we fail to find the attractions which appear to have satisfied the plant-collectors of a former age. Its seeds are usually more conspicuous than its flowers, in consequence of the awns that bristle around the tiny ball. What it lacks in beauty it makes amends for in sanctity, for the Herb-Bennet, or Benedicta, was a favourite subject with sculptors and painters engaged in church decoration. Its importance arose out of the belief, as stated in "Ortis Sanitatis," that "where the root is in the house the devil can do nothing, and flies from it; wherefore it is blessed above all other herbs." Naturally, this came to be one of the amulet plants, that protected its wearer against "venomous beastes." The legend of St. Benedict sets forth that a wicked monk offered the saint a glass of poisoned wine for the purpose of destroying him. But the saint blessed the wine, and the poison, being a sort of devil, flew out of it with such force that the glass was shivered to pieces. Those who cannot refer to "Ortis Sanitatis," which is a scarce old book, may have at hand Mrs. Jameson's "Monastic Orders," wherein will be found the story of St. Benedict.

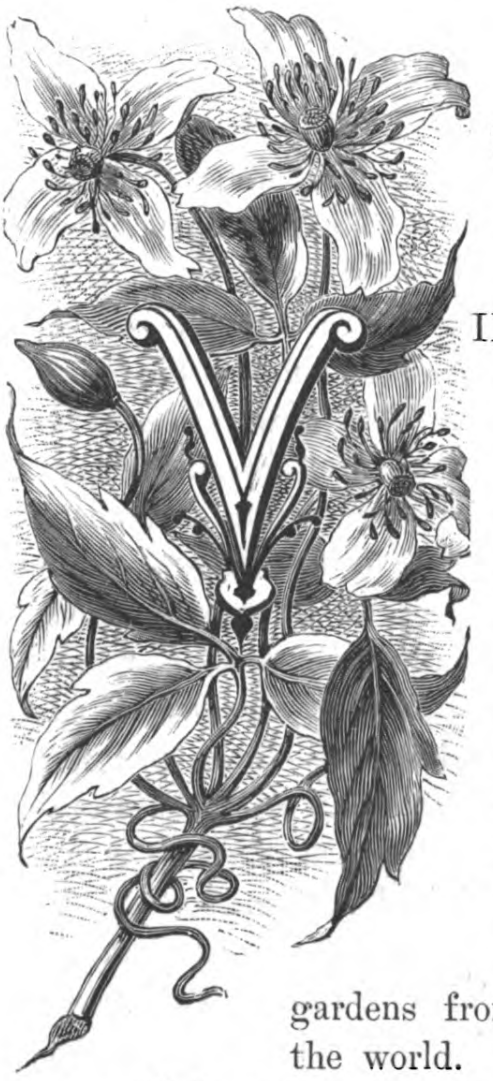
It is singular that in the arrangement of the rosaceous order that prevails, the geums and potentillas come between the brambles and the roses, being separated from the spiræas, to which, in general conformation, they are so nearly allied. Not far removed is a plant that bears a strong likeness to a potentilla, both in its divided leaves and yellow flowers. This is the agrimony, a wood-land plant of considerable interest, and not without beauty, insomuch that if it chances to make an appearance in the garden one has not the courage to pull it out. This

also was a plant of renown for its virtues, and is now sought as an ingredient for herb-tea. The problem for the young botanist is to establish to his own perfect satisfaction its relation to the roses, and then to trace out the several connecting links, and the signs that separate them.

The white cinquefoil (*P. alba*) and the creeping cinquefoil (*P. reptans*) may be added to the list of desiderata for the rockery; but, as remarked above, the florists' section of *P. atrosanguinea* are those that will contribute most forcibly to the glory of the garden, for they are among the very best of border plants. A selection of the most showy should include the following:—*Aurora plena*, double orange; *Dr. Andry*, orange and scarlet; *Coccinea*, crimson; *Hopwoodiana*, white and pink; *Insignis*, yellow; *Louis Van Houtte*, crimson; *Russelliana*, scarlet; and *Sudbury Gem*, crimson. They are so cheap, and make such a brilliant show, that a special compartment may be devoted to them advantageously, in which case a larger collection would be required than those named above.



LEMATIS.



THE MOUNTAIN CLEMATIS.

Clematis montana.

VIRGIN'S BOWER and traveller's joy are names of which any wild vine may be proud. Our clematis of the hedgerows and railway banks is the only British species, and it is so beautiful as it grows up above all the more robust vegetation of an old hedgerow in a chalk country, that it seems to prepare our minds to give welcome to the many hardy species of clematis that have been brought into our gardens from the most distant parts of the world. Of these we have already discoursed, but the present figure takes us away from the *Jackmanni* group to one less attractive but not less interesting, and, we must say, not less beautiful, though its beauty is of a quieter order, and is supplemented by a fresh fragrance that gives general delight.

The mountain clematis is a native of the Himalayan Mountains, and is perfectly hardy in the English garden.

It is a free-growing, free-flowering, climbing shrub, running twenty to thirty feet, and well adapted for clothing a trellis, or rough garden hermitage, or for displaying a wild luxuriance on a spacious rockery, where, if well placed, it will be most effective and delightful. Its flowers are so like those of *Anemone sylvestris* that it has been catalogued as *Clematis anemoniflora*, and it is also known as *C. odorata*, in allusion to its agreeable odour. To grow it well it should be planted in a deep, rich, well-drained soil, and be allowed to run its full length, for to cut it in severely will be to prevent its blooming as freely as it otherwise would. The flowers are produced in prodigal profusion from the well-ripened shoots of the previous year, and pruning back simply removes the flowering wood, and, in respect of the flowers, occasions the loss of a season. The same thing happens in the case of many of the more rampant growing roses; their beauty is seen only when natural growth is allowed, and with them, as with this clematis, clever pruning consists in occasionally cutting clean out to the base any old rods that can be spared, but otherwise preserving the whole of the growth in all its original vigour.

Closely allied to this clematis is the winter clematis (*C. calycina*), a beautiful climber, running twelve to twenty feet, and producing during the winter flowers of a greenish-white colour dotted with purple spots. This is a native of Minorca, and is not quite so hardy as the mountain clematis, therefore it requires a somewhat sheltered situation, which it will pay for by its winter flowers.

Another near relative is the evergreen virgin's bower (*C. cirrhosa*), which makes less growth than the

species noticed above, rarely extending beyond ten to fifteen feet. It is a native of South Europe and North Africa, and scarcely hardy enough for the climate of London, but thrives in a cool conservatory and on open walls that are well sheltered. Miller, the renowned manager of the Chelsea Botanic Garden, said: "Those which have been growing in the open air at Chelsea more than fifty years have resisted the greatest cold without covering." But Mr. Moore, the present curator there, says, "It gets cut to the ground in severe winters, even in Devonshire." In the woody parts of the Atlas Mountains and about Algiers it is a vigorous climber and a strangler of trees; but here its vigour is subdued, and it makes no impression of a capability to give a character to forest scenery. Its flowers are white or cream-coloured, and somewhat campanulate in structure.

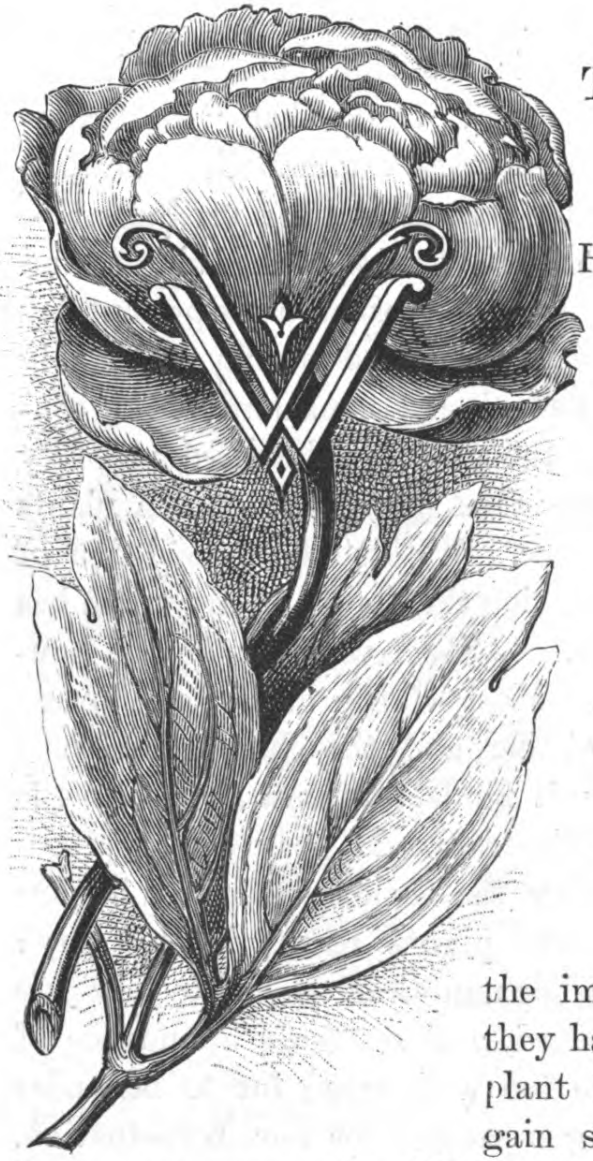
A new and brilliant clematis should here be mentioned, as it is a most valuable acquisition to the garden—the scarlet virgin's bower (*C. coccinea*). It is of light elegant habit, the leaves roundish, the flowers borne on long slender stems; they are bell-shaped, of wax-like consistence, and a brilliant scarlet colour. It is likely to become a general favourite, being perfectly hardy, and needing no special conditions for its growth.

For cultivators who take special interest in plants of this class we can also recommend *C. campaniflora*, with bell-shaped flowers of a light purple colour; *C. erecta*, with large white flowers; *C. tubulosa*, with flowers like those of a hyacinth, the colour blue; and *C. viticella*, with blue flowers. These are all adapted for rockeries, bowers, and other rustic scenes.

An effective mode of displaying a collection of clematis

is to train them to poles on the margin of a spacious lawn, or next a path somewhat remote from the dressed grounds. In adopting this plan care must be taken to prevent small birds alighting on the poles, for they not only defile but injure the plants, and may even kill them. The grey flycatcher is a common offender in this way; but if the poles are sharp-pointed, or have a stout spike driven in at the top, the birds will be careful not to alight on them.

PEONY



THE DOUBLE PÆONY.

Pæonia officinalis.

WHAT may be the value to nature, collectively, of the changes in natural form, which man has affected or rendered permanent by the arts he employs in the cultivation of plants and animals, it is impossible at the present time for any one, however observant, to estimate. But of the magnitude of such changes, and of the immense area over which they have spread, students of plant history and form may gain some idea, even though they must necessarily fail to grasp the full measure of the matter. *Pæonia officinalis* is a plant of some importance for its splendour and hardiness; but at this moment, looking at the future before us, and calling to mind the many splendid pæonies we possess, we are tempted

PEONY

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to indulge the thought that the relation of man's mind to the outward forms of nature is a matter of more profound importance than any merely sentimental view of the subject would suggest. The grand old gardeners valued the pæony, and it is truthfully observed in the *Botanical Magazine* of 1816 (t. 1784) that "in Parkinson's time it must have been more common than now, as he observes that the double sort sometimes produces ripe seeds, which, being sown, bring forth some single and some double flowers." It is most unusual in the present day for double pæonies to produce seeds, and we may reasonably believe that the plant has altered considerably in constitution in the course of the past two hundred and fifty years. A very large proportion of all our garden plants have altered in like manner. Within the knowledge of many of the present generation the double pelargonium has been, as it were, created. Quite recently a double bouvardia has been secured. Most of the cultivated flowers change in some way or other, and the change is always in the same direction, for it tends to throw upon man the burden of maintaining the race. It may be supposed, for the sake of illustrating the curious case that is thus brought before us, that the plants reason in this way: "When we were in the wilds unnoticed we had to take care of ourselves, and we ripened, and scattered abundance of seeds. But *now* we are too well cared for to be under the necessity of adopting measures for our perpetuation, for this master of the world called man will look to it. Let us flaunt more banners and lead a gay life, for the sowing of seed is taken out of our hands." Such reasoning represents the hypothetical case; it is quite according to Nature's method. A man finds a plant that pleases him,

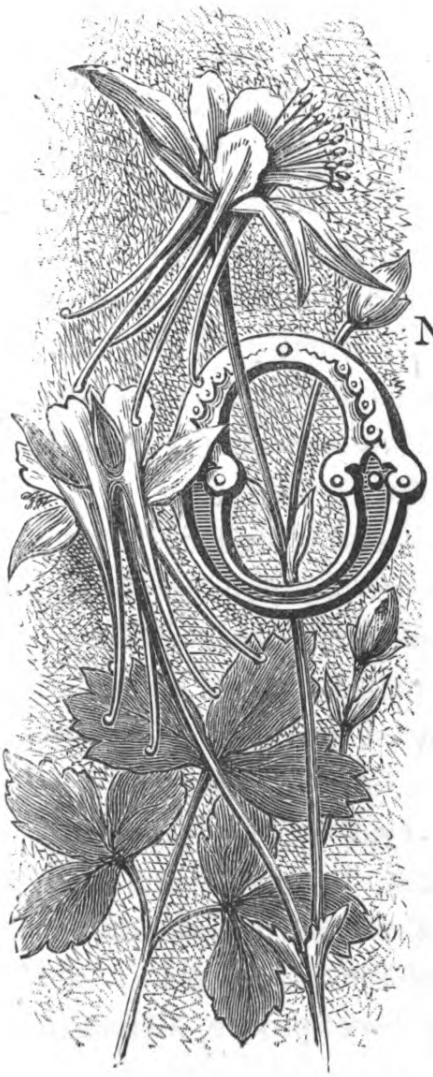
and multiplies it by cutting it up. Thereupon the plant begins to change its habits, and, in the course of a few generations, it ceases to produce seed. A very different order of argument is possible, however, and will occur to the reader. The variations that obtain so much attention are, let us say, strictly according to the course of nature, but when they fail to obtain the notice of man they pass away, or a quite small proportion survive, and become established. But man exerts his skill to keep them, and thus it is that plants with double flowers and variegated leaves abound in gardens. From this point of view we have an illustration of the origin of varieties by selection, and it is suggested to us that were man obliterated, a very considerable proportion of the varieties he has cherished would pass away, leaving no permanent mark whatever on the species they represent.

The splendour of the pæonies is well known, but we do not often see collections in gardens. The brief duration of their flowers perhaps accounts for this; but while they last they are so beautiful that the amateur desirous of doing full justice to the finest of our hardy garden flowers would find them worthy of special attention. The plant before us will grow anywhere, in sun or shade, and in any kind of soil. We have had it scattered amongst the rough herbage on the banks of the stream with daffodils and other flowers of bold growth, and the crimson flowers presented a glorious appearance in the month of June.

But a good collection could not be grown in this rough way. It would be necessary to provide for them a bed of sufficient length, and four and a half feet wide, this width being convenient for the necessary work of weeding and tying-up, the flowers needing a little support to insure

their safety during a gale of wind. The soil should be a deep, rich loam, and the plants should remain undisturbed for several years to form strong stools, and display their various and attractive flowers. There are at least thirty species and varieties available for such a plantation, which in the height of summer would be a magnificent feature of a hardy garden.

All the pæonies are good border flowers, that may be planted at any time if obtained in pots; but if lifted from the ground the best time to plant them is when just beginning to grow in the spring. The single and the double flowers are alike worthy of admiration; indeed, the single *P. edulis*, *P. albiflora*, and *P. tenuifolia* have a beauty of a more refined character than any of the double flowers. But the double flowers make more show and last longer, and we cannot do without them.



YELLOW COLUMBINE.

Aquilegia leptoceras.

ONCE more we meet with flowers closely allied in one genus, but comprising all the primary colours as well as their secondary and tertiary shades. We have columbines red, blue, and yellow, as we have tropæolums, leschenaultias, and primulas. The beautiful *Aquilegia leptoceras*, also known as *Aquilegia chrysantha*, is a native of New Mexico and Arizona. Professor Gray is not in accord with Sir J. D. Hooker as regards the technical botany of the plant. The former regards *A. chrysantha* as a species, the latter regards it as a variety of *A. leptoceras*. The last-named is commonly met with blue and white, but Nuttall, its discoverer, calls it ochroleucous. It is figured in the "Botanical Magazine," *t.* 4407, and the plant before us is figured as *A. L. chrysantha* in the same work, *t.* 6073. A comparison of the figures justifies the view of Sir J. D. Hooker, the main difference between the two being that our present

plant has longer spurs and a deeper yellow colour than the older *A. leptoceras*.

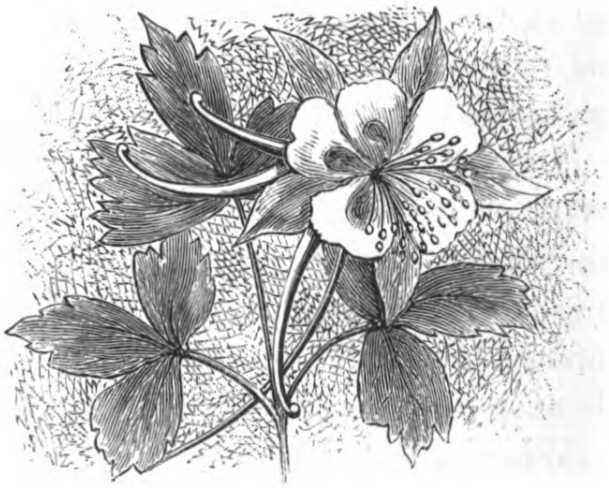
From this lovely yellow columbine that expert florist, Mr. Douglas, has obtained a series of hybrids of many shades of colour, and for the most part characterised by long spurs, all of them extremely beautiful. He appears to have crossed them in all possible ways with other species, and some of the hybrids have characters that might be deemed specific. They are all hardy, and they may all be raised from seed; and they are as worthy of specimen cultivation for exhibition purposes as any of the hardy plants in our gardens. Moreover, they are sweet-scented, which adds to their value considerably.

To raise any of the columbines from seed is a very easy task. The seed should be sown in pans or boxes, filled with light rich soil, in the months of April, May, or June. The proper place for the pans or boxes is a cold frame, where they should be kept moist and dark until the plants appear, from which time they should have air and light abundantly. When one or two inches high they should be pricked out into other boxes, to give them more room. A bed in a frame, or even a prepared place on an open border, may be more convenient for the purpose; and in any case they must be kept hardy by exposure, although it will be prudent to watch them, that they may not suffer from drought, and not less important, to save them from being devoured by slugs, which appear to be always ready at hand to sweep off all sorts of plants newly put out from frames. When quite strong in these quarters, say from the middle of August to the middle of September, they should all be planted out where they are required to flower the next year. If managed with reasonable care, they will

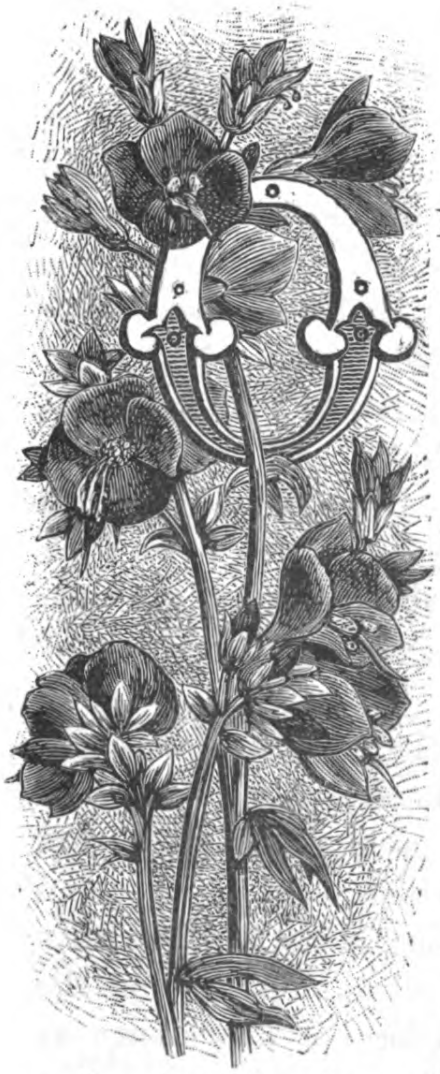
endure unhurt any amount of winter frost, and will flower gaily when the proper time arrives. In the dreadful winter of 1880–81 we had many plants of *A. chrysantha* in an open border, but the frost that killed the golden euonymus and the bay laurel did not harm these yellow columbines.

To obtain stock by division of the plants is a somewhat delicate process, and should not be resorted to so long as there is a prospect of obtaining seed. The best time to divide the plants is when they first show signs of new growth in spring. They must then be taken up, and carefully cut through, a certain number of uninjured roots being secured with each portion. These pieces should be potted in the smallest pots that will hold them, and the soil employed should be a mixture of peat and sharp sand, in about equal proportions, well mixed together, or a good loam, with sand added in the proportion of one-half, or even two-thirds. If carefully potted and kept for a few weeks in a frame, every scrap will make a plant. When the pots are filled with roots, the plants may be turned out into the border where they are to remain, or they may be shifted into larger pots, and have a further nursing. In any case they must have abundance of air and light to make them stout and strong. When old stocks are cut up in this way, it is good policy to nip out the subsequent flower-spikes as soon as they appear, for it is too hard upon a poor plant to be chopped up and to be expected to flower in the same season. If it is not convenient to divide in spring, it may be done in August, in which case the stock should be wintered under glass. The following are the best amongst many species of Aquilegias—*A. leptoceras*, pale blue, grey, primrose, orange, and yellow; *A. alpina*, blue; *A. cærulea*, delicate

blue and white, exquisitely beautiful; *A. canadense*, scarlet and yellow; *A. fragrans*, rosy flesh or light purple, sweet-scented; *A. glandulosa*, rich blue, a grand plant; *A. Skinneri*, red-tipped yellow, worth having, but scarcely desirable in a small collection; *A. Californica*, orange scarlet, a fine plant; *A. brachyceras*, full azure blue, with yellow crescents in the centre, curious and beautiful; *A. vulgaris*, variously coloured and well known, both with single and double flowers, as a most familiar garden plant. It is figured in the Second Series, p. 117.



JACOB'S LADDER.



JACOB'S LADDER.

Polemonium cæruleum.

ONE of the most interesting of the architectural adornments of the abbey church at Bath is least observed or looked for by visitors, for the good reason that it is hidden away on the west side, which is in a kind of close, and hemmed in by houses. But this west side is pierced by a magnificent window of seven lights, supported by turrets, on which are sculptured the details of Jacob's dream: there are the ladders, and the angels ascending and descending. It is a hard, realistic, and very stony rendering of a story that is generally and properly regarded as subjective and spiritual and prophetic. The architect might have adorned those turrets with the ladder-like leaves of the polemonium, and he might have presented the angels in a less cumbrous manner, and, by means of a little architectural ingenuity, have avoided the ludicrous expedient of placing some of them on the ladders head downwards,

to indicate the direction of their movement. But he elected to be objective, and despite the grotesqueness of the design, the effect is at once picturesque and noble, and the story is told with unmistakable perspicuity. In the year 1499, when Bishop King had a dream of angels on a ladder, which this grand window was to commemorate, there was not much attention given to conventional reproductions of plant form, but they *could* build, and when a floral wreath or capital was needed, they found the means to produce it in a way to command the admiration, and perhaps the surprise, of posterity. This Jacob's ladder, or *Polemonium cæruleum*, appears peculiarly adapted for the purposes of conventional art, and the variegated variety may in respect of its very delicate beauty, combined with its peculiar mechanism of form, be described as essentially an "artistic" plant. As a matter of fact, there is no such thing as an artistic plant, nor can there be; but the term is convenient, and serves in some degree to expound one of our commonest inborn notions.

The polemoniums are related to the phloxes, cobæas, and gilias. There are many species known in gardens. The one before us is not only known as Jacob's ladder, but also as Greek valerian. It is a British plant perhaps, and is certainly to be met with as a wilding in the northern parts of the kingdom, but it is probably only as an escape from the cottage gardens. A large-flowered form of it is known as *Polemonium grandiflorum*. This is quite worth a place in the garden, as it is a true perennial, although described in the books as a biennial. The dwarf kinds (*P. humile*, *P. reptans*, and *P. Richardsoni*) are probably varieties of one species. They are very hardy plants, thriving best in a poor soil and a cold position. Another very dwarf kind is

P. pulcherrimum, which has very bright blue flowers, and is equally worth possessing. Of the rest we can say but little. They are worth possessing, but, in common with many interesting plants, the question arises, How shall we obtain them? In Mr. Ware's catalogue seven kinds are entered, comprising all those above named, and in addition the white-flowered variety of the plant now before us. Perhaps for the most hungry lover of polemoniums seven sorts will be enough, and we will not risk recommending any more.

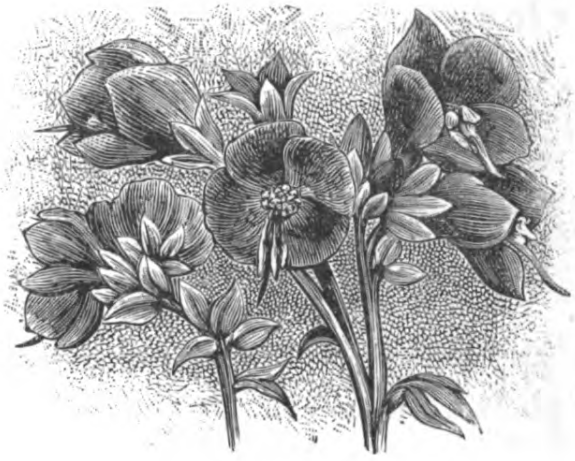
The variegated Jacob's ladder has been remarked upon above as particularly beautiful; and being hardy, it is considered valuable as a bedding plant, making a good grey band different in tone from the cold grey of *Centaurea ragusina* or *Stachys lanata*, which are much prized for their contrast to high colours: the polemonium being of a warm cream colour, tending almost to primrose yellow, is a delicious accompaniment to a mass of blue lobelia, and useful sometimes to make a mixed mass with rose or crimson flowers. This plant is propagated by divisions and cuttings, and a little patience will suffice to insure a good stock of it in one or two seasons. As a rule, it should not be allowed to flower, but when grown as a border plant the flowers are acceptable.

Our plant appears not to have secured a place in the garland of the poets. But in some verses on a flower which grew on Mount Tabor a passage occurs which very nearly fits its homely name and associations:—

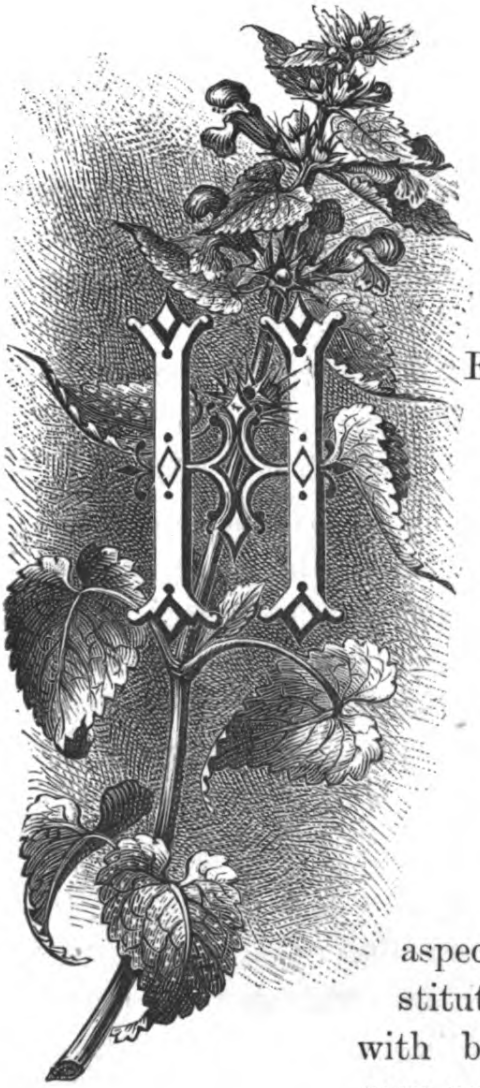
> "Fair flower! thy wondrous tale I love,
> For angels listen from above—
> And did'st thou deck the very sod
> Where my incarnate Saviour trod?

Oh, tell me more, thou amaranth flower—
More of His wisdom, love, and power;
Oh, tell me is that land most fair—
Are all the flowers unfading there?
And if a mortal tread that hill,
Will not each thought soar heav'n-ward still?
Will he not feel celestial birth,
All wing'd for heaven, and loos'd from earth?

"Christian! the glory's all past by
That beam'd on Tabor wondrously—
The sounds miraculous are still,
And earthly winds breathe round the hill;
Prophets, apostles, all are gone—
Nought tells thee where the glory shone.
Oh, dream not holier thoughts would rise
'Neath *Eastern* than 'neath *Western* skies,
But triumph in thy blessed lot—
Thou canst not be where God is not."



SPOTTED DEAD NETTLE.



THE SPOTTED DEAD-NETTLE.

Lamium maculatum.

HERE is an old friend of the cottage garden. What is it—a species or a variety? And if a variety, what name does the species bear? In the opinion of the writer *Lamium purpureum* (the purple dead-nettle), *L. album* (the white dead-nettle), and the plant before us are but forms of one and the same species. But as they differ in habits and aspects, so also they differ in constitution. The first is an annual with broadish heart-shaped leaves and rosy-purple flowers; the second is a perennial with heart-shaped leaves, more pointed than the other, and white flowers; the third, which is here figured, has leaves of the same form as the last, but spotted with white, and the flowers are purple and somewhat showy. Seen in a large patch in a rustic garden it makes a goodly show, and the grand gardener occasionally takes it in hand to give colour to the rockery or to form an edging.

A handsome near relative of this dead-nettle is a plant with bright yellow flowers and quite stately habit of growth. It is the yellow lamium (*Galeobdolon luteum*), also known as yellow weasel-snout and archangel. For the mixed border and rockery it is a very proper plant, and, though a true native, is, as such, a rarity, and therefore readily obtainable only by purchase. There are other good garden plants of the class—as, for example, *Lamium garganicum*, the Gargano dead-nettle, a pretty plant, producing bold whorls of purplish flowers; and *L. orvala*, a distinct red dead-nettle, native of the south of Europe.

The evolutionists give such clear accounts of the fashioning of forms by the cumulative influence of circumstances that one may venture to ask questions of them, and hope for categorical answers. Now, here is a question pertinent to the business in hand. Why are the labiate plants so prolific of variegated-leaved varieties? It seems that variegation in plants is not to be regarded as a phenomenon of general occurrence that may happen anywhere at any time, but rather as a family failing, to be looked for in certain quarters only. Many of the best known plants that have been cultivated in many ways, and much observed as wildings also, have not been known to produce variegated-leaved varieties. Thus, we have no variegated-leaved camellias, no variegated-leaved roses, and only one variegated-leaved rhododendron. But amongst the labiate plants these curiosities abound, and may be seen in plenty in old-fashioned gardens. When the bedding system was in high fashion, the golden balm, the silver mint, the white-leaved nettle, the delicate variegated thyme were in great demand, and would be again were the fashion revived of colouring gardens in

geometric patterns after the fashion of carpets and wall-papers. The student of nature—no matter of what sect or school—may be invited to make a survey of these plants, and to meet, if he can, the question we have propounded to the evolutionist. And the amateur gardener who makes no pretensions to scientific observation may find some entertainment in collecting the plants and comparing their characters. We will here make a brief catalogue of them that may prove useful in many ways. They must be given as they appear in the books, or identification may be difficult.

Ajuga reptans fol. var. is the variegated bugle; *Galeobdolon luteum fol. var.* is the variegated yellow dead-nettle, a fine plant for the border; *Glechoma hederacea fol. var.* is the variegated ground ivy, one of the humbler beauties of the rustic garden; *Hyssopus officinalis variegatus* is the variegated-leaved hyssop; *Majorana vulgaris aurea* is the golden-leaved marjoram that has become a favourite edging plant for the flower beds in the London parks; it is a brilliant thing of its kind. *Melissa officinalis fol. var.* is the celebrated golden balm, once a leading plant for "ribbon borders," the leaves being heavily edged and blotched with full orange-yellow. Of the mint family we can name three plants—*Mentha rotundifolia fol. var.*, *M. sylvestris fol. var.*, and *M. viridis fol. var.*; but as they are not particularly beautiful, we will not praise them. The very pretty variegated rosemary, *Rosmarinus officinalis fol. var.*, is one of the best of shrubs for a ruin, or a dry starving-place on a rockery. The sage family offers us *Salvia fulgens fol. var.*, *S. officinalis fol. var.*, and two others, one with golden, the other with purple leaves. The

variegated thyme, *Thymus officinalis fol. var.*, is a bright plant on a dry chalky soil, but a poor thing in a London garden. We here close the list, and repeat the question—Why are the labiates so prolific of variegated leaves?

"There never yet was flower fair in vain,
Let classic poets rhyme it as they will;
The seasons toil that it may blow again,
And summer's heart doth feel its every ill;
Nor is a true soul ever born for naught;
Wherever any such hath lived and died,
There hath been something for true freedom wrought,
Some bulwark levelled on the evil side:
Toil on, then, Greatness! thou art in the right,
However narrow souls may call thee wrong;
Be as thou would be in thine own clear sight,
And so thou wilt in all the world's ere long;
For worldlings cannot, struggle as they may,
From man's great soul one great thought hide away."

BROAD BELL-FLOWER.

BROAD BELL-FLOWER.

Platycodon grandiflorum.

BELL-FLOWERS so abound that it tries one's patience to hear from the evolutionists that they are late creations, the production of blue flowers being the result of long-continued effort on the part of Nature, whose chief objects in these matters appear to be to astonish man and delight the honey-bees. As the evolutionists profess to know everything, it is dangerous to dispute with them; the safe way appears to be to listen, to consider, to submit their theories to the test of observation and reflection, and to wait patiently for a view of things that may appear compatible with reason. Blue flowers came late, they say, for blue is the most difficult colour for Nature to produce. Some day, perhaps, they will tell us what new flowers are now in process of production; so that our descendants ages hence may know what to look for, and also to what kind of proof to subject the theories now propounded.

The broad bell-flower is variously catalogued as *Campanula grandiflora* and *Platycodon grandiflorum;* it has also been classed as a Wahlenbergia. Being a native of Siberia and Chinese Tartary, it will, as a matter of course, be regarded as a hardy plant; and it *is* a hardy plant, and yet rather troublesome at times by its peculiar sensibilities. It has fleshy roots, which are very brittle. When growing freely, it rises twenty to thirty inches, the leaves rather long, the flowers in a prolonged cluster, large, cup-shaped, of a deep blue colour, and with a shining satiny surface, that renders them at once distinct and attractive. We have occasionally, when our plants were extra strong, found the flowers to measure three inches across, but two inches is the average in the case of plants growing under commonplace conditions. In character and colour this is certainly one of the finest of the campanulas, and the lover of hardy plants should give no rest to the soles of his feet or the palms of his hands until he has mastered every detail of its cultivation.

"Every detail" may suggest that an elaborate code of management is to follow. The management is, however, simple enough. This plant requires a deep sandy soil and a sheltered situation. As remarked above, it is hardy, but peculiar. It is, in fact, hardy in precisely the same degree as the lovely *Dielytra spectabilis,* which is a proper companion plant to this campanula. Give them both a deep sandy soil, rather moist, but effectually sheltered, and you have done enough: the plants will thrive. But if the bleak winds of March can chafe and tear such plants as these, they are but too likely to be damaged for the season. When making their new growth in spring they are a little tender, suggesting to us that, although Nature has

scattered them in northern climes, she has provided them with shelter, in the shape of hills and woods and waters—these three being the principal agents in the modification of climates. Put these plants on an open plain, exposed to "a' the airts," and they will be blown away, no man knoweth whither; put them in a sheltered nook, and they will remain to give gladness to all who behold them in their flowery prime.

On the cold clay land it has been our privilege to delve and decorate, the two plants we have for present purposes linked together have given us some trifling trouble. The pretty *Astilbe Japonica,* which is perfectly hardy south of London, may come into the same category. Indeed, we might make a long catalogue of first-class hardy plants that are unequal to the trials of spring weather in the neighbourhood of London, and that pass into the category of tender plants north of the Trent. There is a way out of every difficulty. In respect of these plants, pot-culture makes all the difference, for the plants so managed have frame and greenhouse shelter so long as the fitful frosts and wayward winds of spring might make havoc of their tender growth; and they are as worthy of pot-culture as any plants known to us.

The broad bell-flower is propagated by seeds and by cuttings of the roots. The seeds ripen well on pot-plants, but on plants in the open border often do not ripen, by reason of their later flowering. When seeds are obtainable—and we have never failed to obtain plenty from pot-plants—it is easy enough to raise a stock of seedlings; and it is well to nurse them in a frame until they are quite strong before planting them out. When division of the roots is resorted to, a little extra skill is required, as the roots are brittle;

and when the pieces are potted they are likely to die, if at any time either too wet or too dry. When about to commence growth in the spring, carefully shake the earth from them, and divide with a sharp knife into convenient-sized pieces, and pot these in sandy loam, and keep close in a frame, and always moderately moist, until they begin to grow freely, when, as a matter of course, they will need plenty of light and air.

PULMONARIA.

PULMONARIA, OR LUNGWORT.

Pulmonaria officinalis.

LEARNED writers are often too ready to sneer at homely medicines and medicinal herbs, but a plant that has traditional fame as an aid in sickness may be taken to have done something for humanity, in however humble a way. If we turn to a materia medica, say Pereira's for instance, we shall find no mention of the lungwort. And here it seems proper to observe that a plant may possess properties that cannot be preserved in extracts or unguents, which in such concentrated form are kept bottled and sealed down for use when wanted. But to obtain a place in the materia medica, it must have properties that can be secured for future service by distillation or some other process, and consequently if it is useful only in a fresh state as an infusion or fumigation, it must remain unknown to technical medicine. The lungwort doubtless obtained its name from services rendered in lung diseases when the medical art was in a primitive state. And if it proved

useful in ages gone by it would prove useful now, unless we were armed with better curative agencies, as no doubt we are, and therefore it is not surprising that the plant is no longer famous as a great power in healing. It is astringent, mucilaginous, and nitrous, and a steep or infusion would no doubt help any poor wheezing creature in the present day as it did a thousand years ago when the inhalation of steam and the use of cod-liver oil were unknown. It would be wrong to ignore the possible virtues of medicinal plants that have gone out of fashion, because every scrap of true knowledge has its value for mankind.

As a garden flower the lungwort is worthy of attention. It belongs to the very limited company of true blues, for the flowers are very blue when fully out, though brilliant pink in the bud. Strange to say, it obtained its homely name as well as its scientific name from the spots on the leaves, which suggest a resemblance to the lungs, and this plant is one of the immense number that originally owed their repute to their compliance with what was called the doctrine of signatures or signatores. Such plants occasionally agreed in quality with the signs they bore, but the signature notion was peculiarly injurious because it engendered contempt in the minds of reasonable men, and so tempted them to ignore good things because of the many bad things they were called upon to recognise.

In the garden we have a pretty little group of plants that the "hardy" gardener will not neglect if he possesses average wisdom. This common lungwort (*Pulmonaria officinalis*) must have first consideration, for it makes a handsome tuft of leafage, and the flowering adds a gay sparkle of colour. The seaside gromwell (*P. maritima*), a native of our western coasts, is a good rockery plant. The

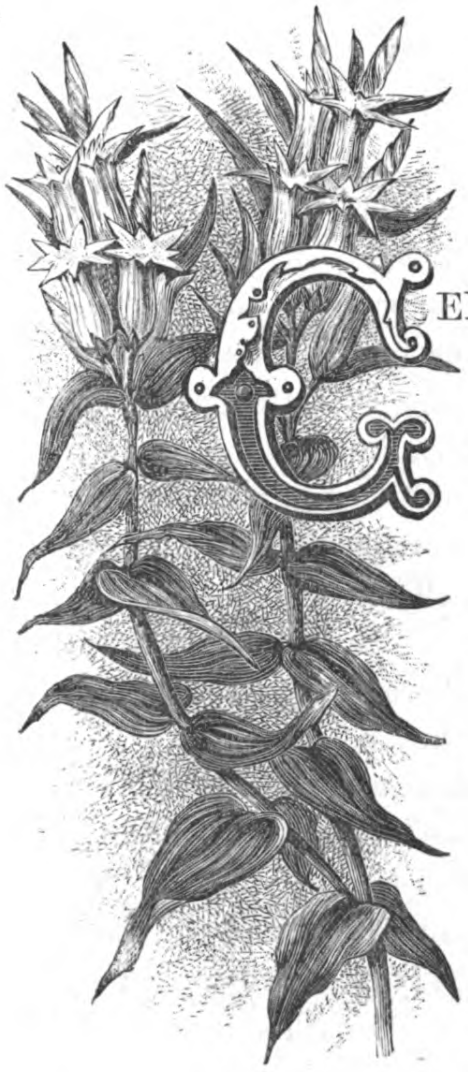
leaves are of a glaucous hue, the flower-buds pink, changing as they expand to rich blue. As the leaves emit an odour suggestive of oysters, and have a touch of oyster flavour, it is sometimes called the oyster plant. To grow this plant a sandy soil is needed, and it must be protected against damp by being banked up with a little heap of small stones. The Virginian cowslip (*P. Virginica*) is a plant of bold habit, flowering early, the flowers a clear pale blue. A more striking plant, but flowering later, is the panicled lungwort (*P. paniculata*), which needs a somewhat shaded position on the rockery. When in flower it presents many shades of sparkling red, purple, and pale blue, and is quite a gem in its way. The Siberian lungwort (*P. Dahurica*) is a graceful plant rising above the tufted rock plants, and producing fine clusters of blue flowers in the month of May. In searching for any of these in the books it will be well to bear in mind that some of them are classed under the genus *Mertensia*, a distinction depending on the relative length of the stamens.

A fine companion plant to these blue borageworts is *Onosma taurica*, a handsome tufted plant bearing large yellow flowers in the early summer. It may be likened to a yellow comfrey, but it is distinct and more refined.

We have not seen the lungwort used in the preparation of a cool tankard, but it would probably answer as well, being equally nitrous with borage. It has long enjoyed some kind of repute as a pot-herb, being commonly cooked and eaten in the north and in some parts of Scotland. It is the peculiar characteristic of the borage tribe to contain a notable quantity of nitre, and there is no doubt a direct connection between this and their frequent production of blue flowers. The common borage in ancient times ranked

as one of the four great cordial plants, the others being the rose, the violet, and the alkanet. The bugloss, the gromwell, the hound's tongue, and the forget-me-not are alliances of the lungwort in the borage family, and shades of blue prevail in their flowers. The loveliest of all blue flowering garden plants is the creeping gromwell (*Lithospermum prostratum*), which forms a dense mat of evergreen leaves overspread in the spring with flowers of the intensest blue. Those who can grow this gromwell on a dry sunny rockery may be advised to plant also *Veronica saxatilis* and *Myosotis alpestris*, also known as *M. rupicola*, for these also reflect the colour of the unclouded sky when summer reigns and the air is sweet.

SWALLOW WORT GENTIAN.



SWALLOW-WORT GENTIAN.

Gentiana asclepiadea.

GENTIANS speak of the mountains more emphatically than any flowers of the garden; and because they do so, the amateur gardener is apt to conclude too hastily that he cannot hope to cultivate them, and thenceforward may be haunted with a dreamy disappointment. They are not well adapted for town gardens, but the one before us is an exception to the rule, for it will grow almost anywhere in a deep sandy soil, in a somewhat open situation, shaded from the mid-day sun and favoured with constant moisture. It is, without a doubt, the easiest of all the gentians to cultivate, and particularly well adapted to plant in the front of a rhododendron bed, or in the coolest part of a good rockery, in a soil of sand, loam, or gritty peat. It is difficult to raise from seeds, but seeds that are scattered naturally by the plant usually germinate and prosper.

A large proportion of the gentians are peculiar in their

requirements, and can only be successfully cultivated in a pure air. A cold situation suits them perfectly if it is moist, and a peaty soil containing many stones, or even heaps of stones, resting on a peat bed, to coax the roots downwards in search of what they require. In any case, a deep soil is a first requisite of success; and therefore, when gentians are planted in what are called "pockets," containing but a few handfuls of earth, they soon die.

The swallow-wort gentian now before us, and the gentianella (*G. acaulis*), are best of all the family for a beginner in gentian culture. Of the gentianella, with its great urn-shaped flowers of the finest royal blue, and glossy leathery leaves, we are accustomed to see in country gardens extensive belts and plantations that may be regarded as "surprise packets" of the loveliest vegetation. The ease and certainty of production account for the frequency of the plants in all such cases. They produce an abundance of seeds, and these are sown as soon as possible after they become ripe. The seed-bed consists of large pans or shallow boxes, filled with sandy loam or peat. On this the seed is scattered thinly, and then a dusting of fine soil is added to cover them. The pans or boxes are kept in a cold pit or frame, and the seedling plants soon appear, and need very little care. In all cases of raising small seeds, one of the difficulties of a beginner is experienced in the watering. The first operation probably washes all the seeds away or very seriously reduces the quantity; and after this vexatious experience, the amateur resorts to various contrivances. To save our friends, so far as may be, from having to learn *de novo* how to water seed-pans, we will say, do not water them at all with a water-pot. In the first place, take care that the soil is reasonably moist when the seed is sown. In the next

place, provide a moist spot for the seed-pans, and *keep it moist,* and let the pans be covered with sheets of paper or loose damp moss, which, of course, must be removed when the seedling plants begin to appear. Finally, if the soil in the pans will get dry in spite of all your precautions, take a large vessel, such as a pail or tub, and fill it with water, and into this *dip* the pans or boxes. By standing them on empty pots in the water, to the depth of two or three inches, they will, in the course of half an hour, absorb enough to carry them on for a week or more, and this without disturbing one grain of sand or seed on the surface.

It matters little how close and dark the seed-pans are kept; in fact, damp and darkness are favourable to the germinating process, especially of the seeds of Alpine plants, which naturally fall amongst mossy herbage, where there is an almost perpetual humidity. But instantly on the little plants appearing, light and air must be admitted, and as they make progress they will need light and air more and more, but must be guarded against all extreme conditions, such as powerful sunshine, driving winds, and drenching rains. To nurse them on with protection enough, and yet to treat them as hardy plants, is not a difficult matter, and indeed a little buffeting of the elements will do them no harm. And it will be equally easy to plant them, as soon as large enough, in a bed made up for the purpose in a frame, and there nurse them again until they are large enough to be planted out.

Amongst the many gentians in cultivation, the following are the most deserving of attention as rockery and garden plants: gentianella (*G. acaulis*), deep blue flowers, the plant a very model of neatness; swallow-wort gentian (*G. asclepiadea*), the stems swollen at the joints, the flowers

purplish-blue, dotted within the tube; the closed gentian (*G. Andrewsi*), a peculiar plant, erect, the flowers in fine clusters, closed at the top, deep blue; Bavarian gentian (*G. Bavarica*), extremely beautiful, the leaves box-like, the flowers large, numerous, of a fine blue colour, a semi-aquatic plant, and therefore quite unfit for a dry situation; and the vernal gentian (*G. verna*), probably the loveliest of all, the flowers solitary, salver-shaped, the colour pure blue. The Alpine botanist will not soon forget the day when he first met with this jewel of the mountains, nor will he forget that he found it only in spots well watered, where it seemed to riot on a diet of cold water and hard stones.

The gentian takes its name from Gentius, King of Illyria, who discovered in these plants some wondrous virtues.

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