ALBERT R MANN

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FAMILIAR
GARDEN FLOWERS

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

AND DESCRIBED BY
SHIRLEY HIBBERD

"Amid my garden's broder'd paths I trod,
   And there my mind soon caught her honoured 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 f-..."

Evans, Garden Lecture.

Third Series
WITH COLOURED PLATES

***

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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 should speak with far better effect than the author could 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 a 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.
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SYNOPSIS.

In continuing the notes, care has been taken 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 preference 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.

BERBERIS is named from the Arabic berberys. N.O., Berberidaceae. LINNÉ: 6, Herba Drax; 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 neat 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, austeres 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 R. vulgaris is the type, the second those of which R. 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.

VALERIAN is a name of uncertain origin, said to be derived from that of a physician named Valerius, who first used it in medicine. N.O., Valerianaceae. LINNÉ: 3, Triandra; 1, Monogynia.—The Greek valerian or spikenard of Pliny is still occasionally used in medicine, but is not of high repute. Bentley and Redwood recognise in this way the common valerian (V. officinalis), which is described as exciting the cerebro-spinal system, and to be denominatd nerine and anti-spasmodic. There can be no doubt the root of the plant is capable of causing intoxication, and is, in effect, a peculiar narcotic. Our handsome garden plant Centranthus ruber is usually the very first plant of a showy nature that is seen in a new chalk-pit. When it has made a beginning by hanging its red beard on the weather-worn surfaces, other plants attach themselves, and thus in time a chalk-pit becomes a glorious flower garden.

SAXIFRAGE.—See note in synopsis.

AVENS. The name may be traced to ucren, and thence to avautia or avencia. In “Ortis Sanitatis” it appears as annicia. 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.
PÆONIA, or the Peony, is named in honour of Peon, 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 Ranunculaceae. LINNÆAN: 13, Polyandria; 2, Diggynia.—The peony 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 peony. The corolla peony 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 peonies, or "mountans," are remarkable for the gorgeous flowers they produce and their exceedingly hardy constitution.

DAFFODIL.—See under "Narcissus." p. 21.

HELIANTHEMUM, from helios, the sun, and anthemion, a flower. N.O., Cistaceae, or Rock-roses. LINNÆAN: 13, Polyandria; 1, Monogyna.—A family of herbs and shrubs, often with gummy branches and a resinous juice. The flowers are hermaphrodite, fugacious, three or five divided, the fruit a globular capsule. The chief home of the cistus family is the southern shore of the Mediterranean and the warmer parts of Europe; there are few in America or Asia. The gum cistus (Cistus labanifera) is a well-known garden shrub; this and other species supply the resinous substance known in commerce as labdanum, an inflammable substance used in the manufacture of torches, also as a cosmetic, and occasionally as a stimulant in cases of catarrh and dysentery. p. 25.

ACHIMENES, from cheimino, sensitive to cold, in allusion to the teuder constitution of this tribe of plants. N.O., Gesneraceae. 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 stamina 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 bignonias and the broom-rape, but have no proper alliance with them. They are mostly tropical; though widely scattered, comparatively few are of any importance in the arts. p. 29.

SYRINGA, or PHILADELPHUS. The first name is from Syrinx, the name of a nymph who was changed into a reed. The second name was applied by the Greeks to a tree that is now unknown. N.O., Philadelphaceæ, or Mock Oranges. LINNÆAN: 10, Decandria; 2, Diggynia.—The philadelphus is allied to the saxifrages and the roses much more closely than to the lilacs, as explained in the text. Hydrangea, Deutzia, and Philadelphus are genera that combine certain common characters, but the last named has sweet-scented flowers, which are unknown in the other two. They appear to be limited to the northern hemisphere and to prefer the temperate climes, but they do not range far northward, although in the English garden they are all hardy, or nearly so. The most fragrant of the genus under consideration is the mock orange (Philadelphus coronarius), a good thing enough in a mixed shrubbery, but a second-rate subject considered as a flowering tree. The finest species for a good position in the garden is Philadelphus Gordonianus, originally found by the celebrated Douglas on the banks of the Columbia river, and through him introduced to cultivation by the Horticultural Society. p. 33.
SYNOPSIS.

POLYANTHUS, or PRIMULA, from Greek polus, many, and anthus, a flower; the flowers being in umbels on the summit of a common stem, as distinguished from those of the primrose, which appear singly on separate stems. The generic name primula is from primus, the beginning, referring to the early appearance of the flowers in spring. N.O., Primulaceae. LINNÉAN: 5, Pentandria; 1, Monogynia.—Annual or perennial herbs with radical leaves and regular flowers. Calyx usually with five divisions or lobes; corolla in one piece, with usually five lobes; stamens equal to the number of the lobes, and opposite to them; style and stigma simple; fruit one-celled, many-seeded. A comparatively unimportant family, best known for the beautiful flowers it contributes to our fields and gardens.

SALVIA, from salvo, to save, in allusion to the medicinal properties of the sage and other aromatic plants of the same genus. N.O., Labiatae, or Lipworts. LINNÉAN: 2, Dianthria; 1, Monogynia.—This order has several distinctive characters. The stems are four-cornered, the leaves are opposite, replete with receptacles of aromatic oil; the flowers in whorls or opposite cymes, the corolla bilabiate, the upper lip overlapping the lower, which is larger and three-lobed; the fruits are small nuts enclosed within the persistent calyx. As they come near to borageworts, note should be taken of their square stems and irregular flowers, for borageworts have round stems and regular flowers. The labiates are natives of temperate regions chiefly, and are very abundant. In the cooler parts of Judia there are over two hundred species; they love dry sunny places, as is the case generally with aromatic plants. In the arts they are much used, as in the preparation of perfumes and sauces; a few are eatable, and many have valuable medicinal properties. The famous patchouli is a labiate; lavender, mint, horehound, and rosemary are familiar labiates renowned for their several uses. As regards the rosemary, there can be no question of its power of encouraging the growth of hair, and thereby curing baldness; it is used also in the manufacture of Hungary water, and contributes in an especial degree to the pungent aroma of eau de Cologne. The famous Narbonne honey is derived from the flowers of rosemary, which abounds in that district of France.

PULMONARIA, from pulmonarius, in allusion to the spotted leaf and the ancient uses of the plant in medicine. N.O., Boraginaceae. LINNÉAN: 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, lithospermum, comfrey, and umphalodes.

LACHENALIA reveals its origin if spelt La Chenalia, M. de la Chenal, the botanist, being commemorated in the name. N.O., Liliaceae.
AZALEA, from azaleos, dry, none of the species being met with in marshy ground, but most of them in dry and often harren situations. N.O., Ericaceae. LINNÆAN: 3, Pentandria; 1, Monogynia.—The azalea does, to the casual eye, appear related to the heather, but a critical scrutiny reveals the family tie. All the heath-worts, or ericaceous plants, are trees or shrubs with hard wood, entire leaves, and hermaphrodite, regular, or slightly irregular flowers. The calyx and corolla are four or five-divided, the stamens being double the number, and inserted in the receptacle. The fruit is in a capsule containing many small seeds. It is a large order, comprising the heaths, arbutus, cloethra, azalea, rhododendron, ledum, and many other shrubs that are prized for their beauty, but are of small importance in the arts, the majority of them being bitter and astringent, and producing inedible fruits. The arbutus is an exception, as it produces an edible fruit, and hence is known as the “strawberry-tree.” The bear-berry (Arctostaphylos) is another example, for if the berries are rarely eaten by man, they are by various species of birds that are prized as food. The common heather (Calluna vulgaris) is a very serviceable plant, as ale is brewed from its young tops with an addition of malt; horses, cattle, and sheep feed on it, but they do not prosper without the aid of better food. As a honey plant it is of great value, differing in this respect from the beautiful azalea, the honey from which (perhaps) poisoned Xenophon’s soldiers. From Ledum latifolium is derived Labrador tea, and Gaultheria procumbens furnishes mountain tea. p. 53.

SUNFLOWER, or HELIANTHUS, the flower of the sun, is a glorious member of the great family of composites or asters. p. 57.

GENTIANA. Named after Gentius, King of Illyria, who first discovered the bitter tonic properties of the gentian root. N.O., Gentianaceae. 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. p. 61.

TRADESCANTIA.—Named in honour of the Tradescants. N.O., Commelinaceae. LINNÆAN: 6, Hexandra; 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. 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. p. 65.

PELARGONIUM, from pelargos, a stork, in allusion to the beak-like seed-pod. N.O., Crane’s-bills, or Geraniaceae. LINNÆAN: 16, Monadophia; 4, Heptandra.—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 turgid." Plants that have not these peculiarities are not proper members of the Geraniaceae. 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 Pelargonium Endlichianum, referred to above as having an abnormal flower.

NEMOPHILA. from nemos, a grove, and phileo, I love, the genus consisting of woodland flowers. N.O., Hydrophyllaceae. Linnaean: 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 eucaly, a favourite garden flower, is a member of this order.

MIMULUS, from Lat. minius, a mimic, an ape, in reference to the gaping mouth formed by the under petal; hence the familiar name of monkey flower. N.O., Scrophulariaceae. Linnaean: 14, Didynamia; 2, Angiospermia.—The order comprises herbs or shrubs, with leaves usually opposite, sometimes alternate; flowers hermaphrodite, irregular, in spikes or clusters; the calyx is permanent, with four or five unequal divisions; the corolla is subject to great variation, but is usually four-divided and gaping; stamens four; ovary two-celled, many-ovuled; style simple with two-lobed stigma; fruit a two-celled capsule; seeds with a straight cylindrical embryo. A large and very natural order, comprising the calceolarias, verbaseum, antirrhinum, diplacus, digitalis, veronica, bartsia, rhinanthus, &c. The species are scattered all over the world, but are most abundant in the warmer temperate regions. Their properties are various, but few of them are available as food; many produce powerful drugs, and all are more or less suspicions.

AMYGDALUS is of uncertain origin. By some it is derived from amyaso, in allusion to the burrows in the stone of the fruit; by others from a Hebrew word that derives its meaning from the early appearance of almond flowers in spring. N.O., Prunaceae. Linnaean: 12, Rosandria; 1, Monogynia.—In a large classification the peach, almond, cherry, plum, and laurel belong to the N.O. Rosaceae, or roses. But a large classification is often inconvenient, and the botanists feel the need of "breaking it up." This has been wisely accomplished in placing the stone fruits in a separate order, for not only do they differ from true roses in this particular feature, but in other respects, notably in the production of a poisonous principle that is prominent in the almond, and gives its peculiar flavour to the kernels of
peach and cherry stones. The pomes or appleworts constitute an equally
distinct group of rosaceous plants, and are classed as N.O. Pomaceae. In this
order or sub-order we have the apples, pears, quinces, cotoneasters, thorns,
and photiniæ. The almondworts, which now concern us, are distinguished
from the true roses and pomeworts by the pistil being a solitary, simple
carpel, changing when ripe into a drupe, and in the general presence in bark,
leaves, or fruit—sometimes in all three—of hydrocyanic acid.

p. 81.

BEgONIA, named after M. Begon, a French botanist. N.O.,
Begoniaceæ. LINNÉAN: 21, Monaceæ: 9, Polyandria.—This small but in-
teresting order is of little importance in the arts, but of great interest to the
botanist and the gardener. It consists of herbs and undershrubs with
alternate leaves, almost invariably divided; the flowers are unisexual, and
usually consist of four pieces. In the male flowers the stamens form a
spherical head; in the female flowers the stigmas are equally conspicuous,
and resemble those of a melon or cucumber. It is singular that a four-parted
flower should produce a three-lobed fruit, but such is the fact, and it is
somewhat of an anomaly. The position of this order has been much dis-
cussed, but appears to have been settled by Dr. Lindley in his “Vegetable
Kingdom.” He says, “The real affinities appear to be with cucurbits, with
which Begoniads accord in the unisexual flowers, peculiar stigmas, and even
ternary number of the carpels. The discovery by Mr. Hartweg of Begoniads
scrambling up trees and shrubs to the height of twenty-five feet renders the
resemblance almost complete.” The begonias are in some places eaten as
salads, the leaves and stems being agreeably flavoured with oxalic acid. The
roots are bitter and astringent.

p. 85.

HYDRANGEA, from hudo or hydor, water, and aggeion, a cup,
in allusion to the form of the seed-vessel. N.O. Hydrangeæceæ. LINNÉAN:
10, Decandria: 2, Digynia.—The hydrangea is often called the Chinese
guelder-rose, and not only is there warrant for the association in the general
appearance of the bold heads of bloom, but they agree also in the peculiarity
that in every head of flowers a certain number are infertile, and these give
the special character to the display. As regards true affinities, however,
the hydrangeas come nearest to the saxifragas, while the deutzias and phil-
delphs are not far off. The plants of this order are all shrubs, with simple
opposite leaves, and flowers in cymes: usually the fertile flowers are very
small and crowded in the centre, while the flowers on the outer part of the
cyme are barren and larger than the rest, and, in fact, the chief source of
those attractive qualities that persuade us to cultivate them. The species
are mostly natives of the temperate parts of Asia and America, about half of
them belonging to China and Japan, and there are two that belong to the
southern hemisphere. They delight in rich soil with much moisture, and
some amount of shade. In a dry soil exposed to sun and wind they are
most unhappy. One species known as Hydrangea Thunbergi furnishes from
its leaves a tea that is greatly valued in Japan, where it is called Ama-tsja,
the tea of heaven. The other species, so far as known, have only their
beauty to recommend them to notice.

p. 90.

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

p. 93.

CONVALLARIA, from convallis, a valley, and rica, a mantle,
in allusion to the leaves. N.O., Liliaceæ. LINNÉAN: 6, Hexandria: 1,
Monogyinia.

p. 97.
SYNOPSIS.

AVENS. — For notes on "Genii" see synopsis.  p. 101.

GENISTA, from the Celtic gen, a small bush, or from the Latin gens, in allusion to the pliability of the branches. N.O., Fabaceae, Leguminous or Papilionaceous plants. LINNEAN: 16, Monadelphus; 6, Dreandria. — This grand order of plants, useful, poisonous, beautiful, various, occasionally wonderful, will always reward the student for a careful study of details, because of their constancy to the typical idea, and their curious variations in expressing it. They generally have compound, but some have simple, leaves. They have irregular hermaphrodite flowers, which are sometimes apparently so regular that it is impossible for the young student to quickly apprehend their morphological relationships. The corolla is likened to a butterfly in the term papilionaceous; usually it consists of five petals, one of which, being larger than the rest, and in a dominating position, is called the standard, two others on either side are called the wings, and two below, which are united, are called the keel. The reduction of these to equality, as in the mimosa, is a puzzling character. The fruit is always a pod, but it may be a pea or a bean or a drupe, in which case the differences are of some account.  p. 105.

CLARKIA, named after Captain Clarke, the traveller. N.O., Onagracee. LINNEAN: 2, Dianthus; 1, Monogynia. — The Clarkias are related to the epilobiums and evening primroses. They are annual plants, with linear or lanceolate leaves, and solitary or racemose flowers which are variously four divided. The capsule is linear, many seeded; seeds neither plumose nor winged.  p. 109.

TROLLIUS, from trol, the German for round, in allusion to the globular flowers. N.O., Ranunculaceae, or Crowfoots. LINNEAN: 13, Polyandrion; 6, Polygynia. — The globe flowers are closely allied to the hellebores; they are all hardy, yellow-flowered, and partial to loamy moist soils.  p. 113.

FUCHSIA. Named after Leonard Fuchs, a German botanist. N.O., Onagracee. LINNEAN: 8, Oenothera; 1, Monogynia. — This small order consists of herbs or shrubs, with opposite or alternate leaves. It is a very natural order of polypetalous exogenous plants, which, in their more complete condition, are certainly known by their inferior ovary, and by all the parts of the flower being four, or a constant multiple of that number. Thus in **Jasminia grandiflora** there are four sepals, four petals, twice four stamens, four stigmas, four cells to the ovary, and the fruit when ripe bursts into four valves. The species characterised by this peculiarity are chiefly herbaceous plants, inhabiting the more temperate parts of the world, and have white, yellow, or red flowers, such, for example, as the great genus of cerotherras, or evening primroses, and the epilobiums, or willow-herbs, which are so common as wild plants. It is only in the fuchsia, which has a succulent fruit and forms an approach to **Myrtaceee**, that a woody structure is met with. The enchanter's nightshade (**Circeo** is a member of this order.  p. 117.

HEPATICa. The name refers to the lobed leaves, which may be likened to the liver in outline. N.O., Ranunculaceae. LINNEAN: 13, Polyandrion; 6, Polygynia. — The hepaticas are closely related to the anemones, and conform to the conditions that suit those plants.  p. 121.

BELL-FLOWER, or CAMPAiNULA. N.O., Campanulaceae. LINNEAN: 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 campanulateous 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.


**CAMELLIA.** Named after Camellas, a Moravian missionary. N.O., Thorne. LINNÉAN: 16, *Monadelphia*; 8, *Polyandria*.—The theads, or tea-plant family, are usually headed *Ternströmiacaeae*, 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 these 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.

**HONESTY, or LUNARIA.** The first name is commented on in the description; the second refers to the moon-shaped seed-pods. N.O., Cruciferae, or Brassicaceae. LINNÉAN: 15, *Tetradyneum*.—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 siliqua. 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.  

**BELL-FLOWER, or CAMpanula.**—See under “Campanula.”  

**OXLIP.**—See under “Primula.”  

**VIBURNUM** owes its name to the ancient use of its flexible shoots, *rico* meaning to tie with twigs or to hoop. N.O., *Caprifolineae*, LINNÉAN; 5, *Prunandra*; 3, *Trigyna*.—The caprifools include all the honeysuckles, Guelder roses, snowberries, and elders. The order comprises trees, shrubs, and herbaceous plants, with opposite leaves and corymbose flowers; the fruit is dry or fleshy. Strange to say, these familiar plants are closely related to the cinchonads, and the designation of “China Guelder rose” for the hydrangea is in some degree justified by the very near approach of that plant to the true Guelder roses. The members of the order of caprifools are mostly natives of the northern parts of Europe, Asia, and America; many of them produce fragrant flowers, as, for example, the honeysuckles, while the berries of *Lonicera caprifoliacea* are a favourite food of the Kamthankalesses, and the wine made from the elder-berries is sufficiently well known. It should be remarked, however, that this is a suspicious family; active qualities are not wanting amongst them, and even the favourite elder-berry is far less wholesome than popular opinion represents, and possibly would often prove mischievous were not the fermented juice “qualified” by the addition of a more potent liquor.  

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

**SILENE**, from *sialon*, saliva, from the gummy exudation by which flies are entrapped, and which explains the familiar name “Catchfly.” N.O., *Caryophyllaceae*, or Cloveworts. LINNÉAN; 10, *Dorandra*; 3, *Trigyna*.—The section of cloveworts to which the silenes belong may usefully remind the garden botanist that the pretty chickweed or the stellaria, the spurrey or spargula, the mouse-ear or cerastium, the soapwort or saponaria, the campion or agrostemma and coronaria, are all of the same family. That the carnations and pinks are of the kindred goes without saying; they are the types of the order and among the most prized of garden flowers. The characters of this order are simple and easily comprehended, so that it affords a good subject for the study of a beginner. The stems usually have swollen joints, and therefore when the florists call the grass of a carnation “grass” they are morphologically right, although technically wrong. The leaves are always simple and opposite; we do not call to mind any variation from this rule. The typical number of parts in the flower is five, but in this feature
variations occur: the stamens either agree in number with the petals or differ in a strictly arithmetical manner, but in the cultivated plants the number of stamens and pistils is a kind of lottery whatever the number ought to be. The silene is a catchfly because it is sticky; but why it should delude the poor flies to their ruin and make (as it appears) no use of them when entrapped is not yet clear to us. As a matter of practical importance it should be noted here that all the silenes are good plants for the table when rightly cooked. Of course when in flower they are useless, but when the young growth is advancing, the tender tops make a good substitute for asparagus, and if blanched they are the more delicate and equally wholesome. The shoots should not be more than two inches long when taken for cooking. The best plant for the purpose is the bladder catchfly (Silene inflata). Probably the tender tops of any catchfly might be used in salads. 

"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 touch;
Sweet is the nut, but bitter is his pill;
Sweet is the bromeflour, but yet sourre enough;
And sweet is moly, but his root is ill.
So every sweet with sourre 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 accempt of little paine,
That endlesse pleasure shall unto me gaine!"
FAMILIAR GARDEN FLOWERS.

DARWIN'S BARBERY.
Berberis Darwinii.

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

As regards the plant before us, which may be called a chip from Jacob's ladder, inasmuch as it is the brother or sister plant to Polemonium caeruleum, the claims it has to be regarded as the Greek valerian disappear before the negative truth of its absolute uselessness. Greek botany
was not founded on Pentandria monogynia nor on Polemoniaceae. Plants that were found useful in some way or other were cultivated and described, and plants that were not useful were entirely neglected. Even when superstition or poetical fancy ruled, the theory was the same, for a supposed use is equivalent to a real use, so long as the supposition holds good; and many of the plants that were of importance in ancient times owed their distinction to properties perceptible to the eyes of faith alone. Even then it was their usefulness that inspired and justified the study of them; for to this hour utility is as much a matter of faith as of proof, or there would be no fortunes made by the sale of many articles, some of which are truly invaluable, while others "perhaps" are absolutely worthless, or, worse than that, pernicious to health. Well, we can rest in the word faith, and throw utility overboard, and then where are we?

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

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

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

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

The plant before us is not in any way related to the Greek valerian. It is a member of the family of Phloxes, and may be roughly described as a creeping form of Jacob's ladder, running to six or more inches in length of stem, and producing blue or white flowers. It is a native of North America, perfectly hardy, and a proper plant for the open rockery. Any sandy soil will suffice for its wants, and it may be increased by division and seed with facility. The nearly allied species or varieties known as *P. pulcherri-mum* and *P. humilis* are as good as the plant before us,
and may obtain attention as producing blue flowers. But they are not of great consequence, and the possessor of a small rockery may do very well without them. There are about a dozen species known, but *P. caeruleum* and *P. reptans* are sufficient for most gardens.
LARGE-LEAVED SAXIFRAGE.
ARDY plants adapted for beds, borders, and rockeries may be roughly thrown into two classes: those that are capable of taking care of themselves, and those that require to be constantly taken care of. This large-leaved saxifrage belongs to the first class; it is one of the most thrifty and useful flowering plants in cultivation, and it is scarcely possible to have too much of it in any garden, for it will thrive where many good things would fade, and its pleasing flowers are produced in plenty in the spring season, when they are especially welcome.

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

These plants are hardy, and capable of taking care of themselves, but they do not prosper in any dry or exposed position. Damp, cold, and deep shade are alike hurtful to them; but a moist ledge or bank, where trees will give partial shade in the heat of summer, is just the place where they may be expected to grow freely and flower bravely. In Paris they are much employed for mixing with other spring flowering plants in beds; but in this country they are not often so used, perhaps because when summer arrives they are found occupying ground which can be more advantageously filled with plants that flower later and continuously. We have had many plantations of these saxifrages under various conditions, but one situation seemed especially favourable to the plants. This was a small sheltered fruit garden, consisting of rich, deep, and de-
cidedly moist, loamy soil. The saxifrages were planted on each side of the main walk, and were fully exposed to light and air (though sheltered from cold winds) during the winter and spring months; but as summer advanced they were in a considerable degree shaded by the leafage of plum and pear trees that spread overhead, and though not robbing them of light in any serious degree, did certainly screen them from the sunshine.

The amateur gardener may profitably bear in mind that success in gardening is like success in life, inasmuch as the secret of success depends in a great measure on attention to little things. We obtain our plants from all sorts of places—from rocky heights, from humid valleys, from snowy plains, and from warm water-courses—and yet we expect them all to thrive under nearly the same conditions within the boundaries of one garden. And the wonder is that many of them do thrive under conditions that appear so very different to those they were adapted for by nature. But their adaptiveness is a limited quantity, and it is an important part of the business of the cultivator to discover the limits, so that he may not kill his pets by subjecting them to conditions at variance with their requirements. Two amateurs of hardy ferns agreed to make an attempt to grow the true maidenhair fern in a London garden, and they both bought plants of the same tradesman for the experiment. One planted his delicate pet in a nice snug corner of the rockery, and having followed the teaching of a book as to the mode of planting, he waited, and hoped for the best. The other followed the teaching of the book as regards the suitable soil, and so forth, but having reflected on the frail constitution of the plant, he proceeded to evolve out of his consciousness conditions of which the other
had not thought. He made a miniature cave with slabs of stone on edge, thus enclosing the delicate fern in a kind of open stone box. As winter approached he laid another slab over the box, thus making a close cave of it, the plant still obtaining sufficient light and air through the rough apertures where the fittings were imperfect. The plant so easily disposed of by number one disappeared during the first winter, and was seen no more. The plant of number two lived and grew, and became a grand specimen, and was displayed to visitors, living all alone, like a jolly hermit, in its substantial cave, through the large chinks of which it laughed at the frost and defied the winds; and when it spoke—as of course it often did—the subject of its discourse was the importance to the gardener of things that thoughtless people call "trifles."
AVENS.

*Geum coccineum.*

MONGST the many pleasures a townsman may look for when rambling through a country village, the discovery of exquisitely beautiful flowers in the gardens of humble cottagers may be reckoned as of some account. You have, perhaps, been revelling for years amidst bedding plants and stately trees, and other fashionable and genteel items of a proper garden. But you have for a season quitted these rural scenes to find rest in things rustic, and in an idle mood you lean upon a fence and look over. Stars and planets! What a blaze of flowers of sorts unseen till now has this humble horticulturist accumulated! Here are masses of colour that compel one's lip to curl with contempt for all ordinary bedding; and combinations and features that to the unaccustomed eye, well rested from the wear and tear of town, appear to over-pass the reach of art,
and often, of course, are the result of some happy accident. But there are cultivated amateurs who appreciate such things and form collections, and find therein delights that are certainly different and doubtless higher in tone than a mere following the fashion would afford, unless, indeed, it became the fashion to render the garden truly representative of the infinite variety and beauty of the vegetation of the world. The subject before us illustrates the ease. You may find the scarlet avens and perhaps two or three sorts of potentillas in the country garden, and you may, again, find them in the garden of the eclectic collector; but in the garden "of the period," where carpet colouring, and evergreens clipped into round balls, are prominent features, such things are utterly unknown.

The earth is plentifully furnished with beautiful plants, and it is a matter both for surprise and thankfulness that an immense proportion of the happy throng may be grown to perfection in our gardens. The species of geum that have been introduced to this country as hardy plants, adapted for the open rockery and border, number over thirty, and they are natives variously of North America, Chili, Kamtsehatka, Russia, Volhinia, the Alps, the Pyrenees, the Carpathians, and the hills of Greece. That very few of them are now to be found is no fault of the plants, for if they were all re-introduced and displayed with judgment, they would be found as beautiful as ever, and as fully as ever entitled to reproach men for their perversity in neglecting the simplest and cheapest and most lasting and ever-changing of all garden pleasures.

The avens is a rosaceous plant, and the picture might almost pass as representing a rose from the hedgerow. We have two wildings of the tribe—the common avens
AVENS.

(Geum urbanum), producing yellow flowers like those of a potentilla, and the water avens (G. rivale), which has nodding flowers, curiously combining purple and orange in their colours. The scarlet avens is a native of Chili, and there are two or three varieties of it in cultivation. We adopt Lindley's name for our heading, but the plant is also known as G. chiloense.

Where space can be found for a few other species, we can recommend the yellow mountain avens (G. montanum), which produces yellow flowers; the creeping avens (G. reptans), also producing yellow flowers; and the three-flowered avens (G. triflorum), which differs from the others in its diminutive growth. To these may be added the two British species. The ordinary soil of any good border or well-made rockery will suit them all perfectly. The best of the bunch are G. coccineum and G. montanum, as may be learned sometimes at a horticultural exhibition. It happens occasionally that prudent promoters of flower shows offer prizes for collections of hardy plants; and these two beautiful geums often appear in such collections, their fresh distinct beauty rendering them "show plants," in the proper sense of the term.

Having mentioned the potentilla as a near relation to the avens, it is but just to another charming plant, as also to the reader who can love such things, to mention the white mountain avens (Dryas octopetala), an extremely beautiful and scarce British wilding, which betrays its geographical relations in all its characteristics. It is the way of mountain plants to have short stems and a close tufted leafage, and flowers very large in proportion to the open parts. This lovely dryas conforms to the rule. Its evergreen leaves are deeply cut, and on the under side
clothed with woolly down. The large flowers are like white anemones, the purity of the petals and the bright yellow stamens in the centre assisting in completing the resemblance to *Anemone nemorosa*. The white mountain avens needs a moist peaty or sandy soil, and must be protected from slugs and snails. If planted in common soil it is not likely to live long.

*Geum coccineum* is figured by Sweet in the “British Flower Garden” (p. 292) as *Geum queliyon*, and he there refers to another plant, a native of Greece, which he remarks “is doubtless a species of sieversia.” The present species, according to Feuillee, is a native of the sides of mountains in Chili, and has not been introduced there from Greece, as has been supposed. It makes a valuable addition to the flower borders, thriving well in the common garden soil.
THE DOUBLE PÆONY.

*Paeonia officinalis.*

Hat 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. *Paeonia 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
to indulge the thought that the relation of man's mind
to the outward forms of nature is a matter of more pro-
found importance than any merely sentimental view of
the subject would suggest. The grand old gardeners
valued the paeony, and it is truthfully observed in the
Botanical Magazine of 1816 (t. 1784) that "in Parkin-
son'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 paeonies to produce seeds, and we may reasonably
believe that the plant has altered considerably in con-
stitution 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 bou-
vardia 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 paeonies 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 peonies 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.
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 Phoebus 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 Volatus, 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 Cerinus, 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 Grandiflora, 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; *Cernus plenus*, a lovely white rosette flower; and *Cernus 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.
THE
ROCK-ROSE.

Helianthemum vulgare.

ROCK-ROSE may be more properly called a sun-rose, for a Helianthemum must be a flower of the sun. The plants of this class known to gardens are very beautiful and thoroughly useful. The rock-roses belong to the Cistus family, which love sunshine, and produce gay flowers. The best of the group is Cistus ladanifera, a hardy shrub in the south of England, and one that makes an impression when seen at its best, and very often it is in the tiny front garden of some old-fashioned house in a sleepy country town that this gay cistus will be found in perfection. From thence to the grand rockery is a great transition, but having made it, we see the cistus again and amid grander surroundings. But in the many gardens where such plants are wanted to illustrate the variety and splendour of true garden vegetation, we shall scarcely find any cistus or any sun-rose.
To begin with sun-roses is easy enough, and it is easy to go on with them. The best place for them is the sunny ledge of a good rockery, on a sandy or calcareous soil, where they will take care of themselves, spreading and flowering in the most delightful manner. But as we never know what we can do until we try, it remains to be said as regards the general subject of growing sun-roses, that they thrive fairly well on heavy soil and under the shade of large trees. In the arboretum at Hermitage a considerable collection of Helianthemums, generously supplied by Mr. Ware for experimental purposes, were planted on the margin of a mound consisting of heavy loamy soil, beneath the shade of ash and chestnut trees. The rock-roses stood the trial well; they grew with vigour, flowered with freedom, were altogether delightful, and occupied their shady mound for the space of nine years. The plants were very small indeed when first put into the ground, but they spread to the dimensions of many feet before their race was run. They were not in completer shade, because the morning sun reached them from open meadows skirting their side of the garden, and with the sunshine came sweet air from the east, which we may suppose they fully enjoyed.

The common Helianthemum is a variable plant, and may be varied beyond all present limits by the interesting process of cross-breeding. The varieties in cultivation comprise white, yellow, rose, crimson, and purple flowers in several shades, mostly single, but a few are double, and there is one sort with variegated leaves. Nor are we restricted in our choice to varieties of *H. vulgare*, for *H. rosmarini-folium*, *H. pilosum*, and *H. croceum* offer their several attractions, and at least a hundred other species are available for such as seek for them and know where to find
them, which we confess we do not, although they have a place in the books. A very beautiful species is *Helianthemum tuberaria*, a herbaceous plant, native of South Europe, producing ribbed leaves and yellow sun-roses of the most exquisite beauty; and only needing what may be termed good conditions on the rockery. A fine plant intermediate in character between a sun-rose and a cistus is *Helianthemum ocymoides*, an erect-growing shrub about two feet high, with ovate lanceolate leaves and flowers bright yellow, with a blotch at the base of each petal.

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

All these plants may be easily propagated by cuttings of the young shoots placed in a moderate heat. But to insure variety, and to make plants in considerable quantity, there must be systematic saving and sowing of seeds. It is a good plan with all choice subjects to sow the seeds in pans or boxes, and give the young plants the shelter of glass until they are somewhat advanced. But those who cannot manage in this way may sow on a sandy, sunny border in the month of April, and plant out the seedlings as soon as they are large enough to be handled with safety. The soil should be sandy and calcareous for all except the
common species, which, as remarked above, is not particular as to either soil or aspect. A simple way to shelter tender plants of this class during frosty weather is to insert a few boughs of evergreens near them, so as to overhang them slightly.

For the tasteful display of a collection of sun-roses and cistuses we need stony banks, balustrades, and other similar situations, where the plants can spread and trail and form natural festoons and falling masses, so as to approach the wildness of nature, but not to lose the order and neatness which belong to art. The trim garden is usually agreeable, and the trimness sets off the beauties of many plants, but the "negligence of nature" has also its charms. It is the triumph of art to conceal art, and in the garden it is pleasant sometimes to have visible reminders of the freedom that prevails in the world where "the crooked scythe and spade" have not touched a clod, nor damaged a leaf, nor put anything in order to gratify human notions.
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, Manue Perfection, Rose Queen, Sir Treherne 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.
SYRINGA.
SYRINGAS are suggestive of the highest glories of the spring. The "enamelled meads" and the flowery banks are more lovely in spring-time than Tom Tiddler's ground could ever have been, for his parterre was dotted with only gold and silver. Here on these green prairies and bosky banks we have rubies and amethysts and carbuncles and jacinths in endless variety, and in presence of them can afford to tell the truth that Tom Tiddler's ground is nowhere. But we speak of the higher glories of the spring, and those who look higher will see them arrayed on the leafy boughs of fruit trees, thorn trees, syringa trees, and trees of many shapes and names. The flowering trees are, beyond all doubt, the finest of all the furniture of the English garden in the best days of the flowery spring. This syringa, a familiar tree, cheapest of all in man's market
as in nature’s market, is a delicious beauty when its white flowers are set out like huge pearls upon a groundwork of green leaves, while the birds sing from its sprays the happy song that has always for its burden—

"Spring is here, and Summer is coming."

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

The large-flowered mock-orange, Philadelphus grandiflorus, is known also as P. speciosus and P. latifolius. It is a deciduous shrub, rising to a height of six to twelve feet, with roundish leaves, and producing large white, sweet-scented flowers in the month of June. Although classed with spring-flowering shrubs, the time of its
flowering may be said to be at least almost summer. There is a nearly allied species, *S. inodorus*, which, as the name implies, produces scentless flowers. The Japan species, named *P. salsumi* or *P. sinensis*, is a real beauty, slender in growth, with narrow leaves and large white flowers. The latest flowering species is Gordon's philadelphus (*P. Gordonianus*), an American species, producing flowers of great size.

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

Having spoken of second-class shrubs, we feel bound first to beg their pardon for apparent but unintended depreciation. It is in the nature of our connoisseurs as well as of appraisers to compare values, and we are not disposed to rave about the mock-orange any more than about the real orange, but acknowledge at once that both are useful. Let the philadelphus, if it be the least aggrieved, do as some human philadelphists do: let it take consolation from the respectability of its family connections. In the order of saxifrages we find some first-class garden shrubs, which we will now name for the advantage of readers who do not happen to possess them.
*Deutzia crenata* (syn. *D. scabra*) is a handsome, hardy shrub, rising to eight or ten feet, the habit neat and almost elegant, the flowers produced abundantly in the height of summer.

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

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

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

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; *Janne 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.
SALVIA, OR
BOLIVIAN SAGE.

Salvia Boliviana.

Within the last half-dozen years several new species and varieties of salvia have been introduced to our gardens, very much to the advantage of the winter colouring of the greenhouse and conservatory. Our old friend Salvia splendens is not eclipsed or superseded by any of the new-comers, for that and S. patens (figured in Series I., p. 69) are still the two best plants of the sage family for the flower garden. When grown from summer-struck cuttings and potted on to insure strong plants, the scarlet-flowering sage is a loud summer beauty. The best place for a clump is in the sunniest part of the garden, the soil to be somewhat poor and stony, and if containing some proportion of old plaster or other calcareous rubbish, all the better. For a few isolated
plants a sunny border near a hot wall answers admirably, as the heat reflected from the wall, together with the dryness of the soil, will favour the abundant flowering for which the plant is famous when growing to its own liking.

When raised from spring-struck cuttings, the scarlet sage will often make a free growth in the open ground, and show not a single flower to justify the little care it requires. In this case the possessor of the plant may still be as happy and hopeful as he that fights and runs away, for the triumph is but delayed, and may with proper courage be still commanded. Some time in September the flowerless plants should be carefully lifted so as to keep as much earth about their roots as possible, and be put into smallish pots—smallish as compared with the size of the plants, but not so small as to necessitate any severe injury to the roots. The soil used in filling in to make them firm in the pots should be poor sandy stuff, the fresher the better, but there is no manure needed. The roots must be kept only moderately moist, and the tops should be moistened with a shower from the syringe twice a day; the home of the plants must be a shady place in a warm greenhouse. In the course of a few days after being potted, they will hold up their heads and look well, and may then be put in the full light, and have water regularly, but should never be very wet at the root. There must be no pruning of any kind; not even a leaf should be injured except by unavoidable accident. All this is very simple, but it is none the less important. In the course of November the flowers will appear, and if the house is kept warm and the plants are near the glass, there will be a beautiful display for fully two months: say until the turn of the year, and then some other species of salvia may be at command.
For the early spring-time, or more especially for the month of February, there is no grander conservatory plant at command than the Bolivian sage here figured, the book name of which is *Salvia Boliviana*. It is a native of Bolivia, introduced to Europe by Van Houtte, of Ghent. Although coming from a hot climate, it does not require stove cultivation, as it is a mountain plant, found on the Bolivian Andes at elevations of 10,000 to 12,000 feet, a robust-growing shrub, producing gorgeous panicles of flowers of the most brilliant crimson colour. It is probably the same as *Salvia rubescens*, or if not, the two are but slightly different forms of one and the same species. That is a matter of no great consequence in the present connection.

In the cultivation of this fine salvia a certain golden rule, often enforced by writers, and as often ignored by amateur cultivators, must be strictly observed. A thousand examples might be cited in illustration of the importance of this golden rule, which consists in the raising of a new stock of young plants every year. This rule is of special importance in the case of pansies, chrysanthemums, calcetilarias, cinerarias, petunias, and salvias, for it rarely pays to keep old plants of any of them. In the month of March cuttings of salvias may be easily rooted on a mild hotbed or in a warm house, and it is good practice to strike a few in the course of the summer or autumn, more especially of such as it is intended to plant out the next year.

Pot culture from first to last suits this plant perfectly, and the compost may be somewhat rich for it, as it is of a free leafy habit, and produces large spikes of flowers when liberally nourished. The young plants must be shifted on as they fill their pots with roots, but care must be taken not to give them at any time an excess of pot room, and the last
shift should be in September, as any disturbance of the roots in the later months of the year will interfere injuriously with the flowering. For a general rule, nine-inch pots may be regarded as the largest allowable for plants well grown, and in these they may be allowed to flower. As the flower-spikes rise, weak liquid manure may be given to assist them, and the house must be warm enough to promote a fine development, say a temperature of 60°, rising to 70° with sunshine. In a cold damp house they will do no good at all. The finest examples we have seen of this plant were in the greenhouses in the Royal Gardens, Kew. They were truly wonderful, and had for companions plants, not less wonderful, of Senecio Gheshbrechtii, with gigantic heads of orange-yellow flowers. In the same houses were epacris, cinerarias, heaths, cyclamens, acacias, and other of the usual occupants of a greenhouse, which are here named to show that our Bolivian sage does not need the heat of the stove even when flowering in February.
EARNED 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 astrin-gent, 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 borago 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.
LACHENALIA,
OR CAPE COWSLIP.

Lachenalia latroda.

APE COWSLIPS are children of the great family of lilies, or, to put the matter in less familiar terms, they are members of the hyacinth and seilla section of the order Liliaceae. They are bulbous plants, of somewhat fleshy texture, making large, thick leaves, which are often handsomely spotted, and a head of flowers that are tubular, pendent, apparently furnished with a calyx. These resemble hyacinths sufficiently to justify the association in the minds of those who have not studied the details of structure that determine the classification. But even in the view of the unlearned a lachenalia is somewhat of a curiosity, and the question may properly arise, What is the meaning of the apparent calyx? for a lily and the relation of a lily should have no such thing. The
answer may prove of some interest to the reader. A lily, and every relation of a lily, should have a flower of six parts, which may be divided to the base, or only cleft into six lobes. Now, in many instances three of these are so placed as to be within or without the other three. In the flower of any true lily it may be seen without the aid of a botanist that the divisions of the flower are in two sets of three each; they are usually of equal length, but one set of three is distinctly placed within, and the other set without the general compass of the flower. We may speak of the outer divisions as forming the calyx, and the inner as forming the corolla. But we do not use such terms; the flower of a lily is called the perianth, and the six divisions are only distinguished as inner and outer segments.

The Cape cowslips were introduced from the Cape of Good Hope about the year 1774. The well-known *Lachenalia tricolor* was the first of the throng, and in the opinion of the present writer is the best even now. It was figured in the *Botanical Magazine* in the year 1790 (t. 82).

It is interesting to trace the history of the nomenclature of the flower. Jacquin described it as *Lachenalia*, in honour of Warnerus de la Chenal, a Swiss botanist, and the name remains to this day. But Linnaeus described it as *Phormium aloides*, and it has also been named *Hyacinthus orchioides*. The generic term *Phormium* is now applied to the great New Zealand flax, and there is no more occasion for a change.

The beautiful flower before us is a variety of *Lachenalia tricolor*; of that there can be no doubt whatever. It was introduced at the same time as *tricolor*, and for a time was regarded as a separate species. It differs from the other both in form and colour, the longest seg-
ments of the perianth being broader and more expanded, and the shorter segments being more acutely cut. In *tricolor* we have a lovely blending of fiery red, orange, and green, with gleams of creamy white; in *luteola* we have a self-colouring, or say uniform colouring, of yellow buff or tawny orange, the short segments having small green spots on their points or apices.

The cultivation of lachenalias may be stated in a few words. They are strictly greenhouse plants, and it is therefore improper to plant them in the open ground. They are grown in pots, those of smallish size being preferable—say five to seven inches diameter. If grown in large pans for any particular purpose, the vessels should be shallow—say five to seven inches deep at the utmost. It is not necessary to put much drainage material in the pots—one good hollow crock, say a neat little convex oyster-shell, placed hollow side downwards, answering admirably to afford escape for superfluous water. The soil should be sandy loam and leaf-mould; it matters not about the exact proportions, provided the loam predominates. In place of leaf-mould very rotten and quite clean soil from an old melon or cucumber-bed may be used; but a rich, heavy soil is not suitable. Put the bulbs rather close together in the pots—say a dozen in a six-inch pot—and cover them with just enough fine soil to hide them. Being potted in the summer or autumn, they should be kept in a frame and have but little water, until the leaves appear and indicate that they would like to grow. Now an important point in the cultivation consists in placing them in pans of water from the time the leaves have attained the length of two inches or so, and certainly not before. If the water is only a tenth of an inch deep it will suffice; but if an inch
deep in the morning it will be all gone by the next morning, and another inch may be supplied. The object is to keep the roots in full activity, and yet to avoid treating the plants as aquatics, for to be deeply immersed would be deadly to them. The result of this treatment will be a growth of large, thick, glossy, richly-coloured leaves, and a show of flowers far finer every way than can be obtained by the system of cultivation that commonly prevails. We have always so treated our exhibition lachenalias, and have never withheld from such as desired the information a disclosure of the secret of success. As regards temperature, that of an ordinary greenhouse is all-sufficient. These plants will endure without serious harm a temperature as low as 35°, and one as high as 90°. But such extremes are to be avoided, and the proper temperature for them is 45° to 60°, with as much air as weather will permit, and full exposure to the light.
THE
PONTIC AZALEA.
Azalea Pontica.

NE of the many striking incidents of the retreat of the ten thousand, as told by Xenophon in his "Anabasis," is that of the poisoning of many of the soldiers who had eaten of honey in the neighbourhood of Trebizondde. The event occurred soon after that wondrous cry, "Thalatta! Thalatta!" which arose from the weary host at the first sight of the Euxine under the guidance of the servant of the Governor of Gymnias, and it heightens the dramatic effect of the situation. The Colchians had refused them permission to pass through their country, and Xenophon had said, "These alone stand between us and our native land; let us eat them alive." Then the Colchians learned somewhat of the Greek manner of fighting, and they fled in dismay, leaving the soldiers masters of their deserted villages. Then occurred the last of their adventures, which is thus
described by Sir Alexander Grant in the volume on Xenophon, contributed to Blackwood's "Ancient Classics"—"It consisted in their finding a quantity of bee-hives, from which they ate the honey abundantly. But the honey was of a kind common to this day in Asia Minor, made from a species of rhododendron, or from the common rose laurel (Nerium oleander), and having intoxicating and poisonous qualities. From the effects of this honey large numbers of the soldiers fell stupefied or maddened to the ground, and for two or three days they were hors de combat, but at the end of that time all recovered."

Remarking on this occurrence, the author of the essay on the "Honey Bee," reprinted from the Quarterly Review, says:—"The soldiers suffered in proportion to the quantity they had eaten: some seemed drunken, some mad, and some all but died. This quality in the honey has been referred by Pliny and others to the poisonous nature of the rhododendron which abounds in those parts; but from inquiries which we have made at Dropmore, and other spots abounding with this shrub, we cannot learn that any difference is perceived in the honey of those districts, or, indeed, that the common bee is ever seen to settle on its flowers. If the Kalmia latifolia be a native of Pontus, the danger is more likely to have arisen from that source, the honey derived from which has been known to prove fatal in several instances in America."

It is pretty generally agreed, both by scholars and naturalists, that the plant from which the poisonous honey was derived was the one now before us, the Pontic azalea; but Sir A. Grant's suggestion of the oleander is reasonable, while the suggestion of the Kalmia, in the second of the above quotations, is unreasonable, because the plant is
unknown to the old world. It will not be expected that any attempt should be made in these pages to solve a problem that has perplexed the learned. But having failed to find any traces of poison in honey gathered in districts where rhododendrons and azaleas abound, we have sometimes considered it as not improbable that the Colchians poisoned their wells before they abandoned their villages, and that thus the usually exact writer of the "Anabasis" may have been mistaken. The eating of honey promotes thirst, and honey eaten in haste, and in excess, would prove dangerous without the aid of poison. But if we accept Xenophon's statement without any qualification, then we incline to the opinion that the azalea was not the offending plant, but the more decidedly dangerous *Nerium oleander*.

The azaleas that are represented by *A. Pontica* are of the greatest value in the English garden, being perfectly hardy, immensely showy when in flower, and peculiarly pleasing when their leaves acquire the ruddy tints of autumn previous to their fall. They are often mixed with rhododendrons, but usually that mode of disposing of them appears less effective than grouping together in large beds, or scattering them about the borders with other deciduous trees and shrubs. The intensely brilliant golden-green of their new leafage in the spring seems to make a discord when we see patches of it amongst the sombre green of the rhododendrons; but in separate groups, and associated with other deciduous trees, they are as gay and various as any of the flowering trees known to us.

The Pontic azalea is a native of Asia Minor, and in many respects distinct from the hardy azaleas that are natives of North America, such as *A. calendulacea*,
A. nudiflora, and A. viscosa. Its nearest ally is A. Sinensis, a native of China, whence also we have the gorgeous A. Indica, which in the dawn of our summer renders the conservatories and flower shows resplendent with its many-coloured blooms. These last two are scarcely hardy, and therefore must be grown under glass during at least a portion of the year. But the series first named need no protection at any time, and they will thrive in any soil that is of a sweet mellow texture and free from calcareous matter. It is customary to plant them in peat, and they certainly thrive in such a soil; but in turfy loam, or any soil of a loamy character, and especially if sandy, they will generally prosper and give an abundant reward for the most ordinary care.

The hardy species have been freely crossed, and the result is innumerable varieties, producing flowers of all colours, very many of them "flame-like" in their shades of yellow, orange, red, crimson, and intermediate tints.
WHEN the world has enjoyed its laugh at the expense of the lovers of sunflowers, it may find a useful substitute for frothy excitement in "discovering" the magnificence of this very familiar flower. As seen in the average garden, its fine character is not often apparent, for it is usually badly grown, and the grave mistake is made of planting it in groups, whereas single plants should stand alone amidst green surroundings, and should be so liberally cultivated as to acquire gigantic proportions. The several stages of development of the flowers may constitute a series of profitable studies in plant form, and there is one stage, when the seeds in the disc are fully formed, but are as yet quite green and "milky," that may properly command the rapturous admiration of
a large-minded artist. These remarks apply more especially to the common annual sunflower (*Helianthus annuus*), but it may properly be added that all the sunflowers are noble plants, and if not adapted for a front place in a highly-dressed promenade, there is a place for them, which, when found, they will readily fill, for they are accommodating plants, and the perennial kinds are among the most useful of gay garniture for a large London garden. As for the annual kinds, it is only in a country garden and on a deep strong soil that they attain to proper magnificence.

Our grand beauty, the annual sunflower, is a native of Mexico and Peru, and its outline may often be traced in the sculptures of the ancient temples that date from the time of the Aztecs, and constitute the most important of the archaeological treasures of the western continent. In the description of the marigold we have touched upon the fancy that this flower takes its name from following the sun in its course, so tastefully expressed by Moore—

"As the sunflower turns to her god when he sets
The same look which she turned when he rose;"

and it has been shown that the fancy has no foundation in fact. One glance at a garden of sunflowers will demonstrate this, for they will be found facing every way indiscriminately, evidently wanting in the adoring affection for glorious Apollo they have obtained credit for from the poets. "A garden of sunflowers" the reader will perhaps repeat, as in doubt of such a thing, but we have seen sunflowers in pieces of an acre in extent, and without any sense of satiety, so interesting is it to note the variety of character displayed in the several stages of development.

Of sunflower poetry there is no lack, while many flowers that rank much higher in the estimation of the world are
absolutely without honour in verse. Clare pictures the cottager selecting for the garden the rose, the woodbine, the daisy, and in due time

"Training the trailing peas in bunches neat,
Perfuming evening with a luscious sweet,—
And sunflowers planted for their gilded show,
That scale the lattice windows ere they blow,
Then sweet to habitants within the sheds,
Peep through the diamond panes their gilded heads."

Sunflowers are grown in America for the oil that may be compressed from their seeds. This the English housewife may obtain indirectly by the very simple plan of growing sunflowers for the poultry-yard, for the oily albumen of the seeds is very acceptable to poultry. The best way to supply the birds with the seeds is to hang up the ripe heads just high enough to compel the chicks to pick them out, for when the heads are thrown into the yard they are trodden on and wasted.

The cottager’s way of growing sunflowers is to sow the seed in April in the open ground. The proper way for a gardener is to sow the seed in March in pots or pans, and start the growth in a gentle heat. Any light rich soil will suit for the purpose. When the plants have made two rough leaves they should be pricked out into other pans and allowed room to spread, and kept near the glass, with plenty of air, so as to be strong and stout—no matter how short—for planting out early in May. They must for a time be protected from frost, keen winds, and snails. If the soil is rich and deep, and the plants are allowed plenty of room, they will attain to far greater dimensions than are commonly seen, and make a truly grand display.

Amongst the best of the annual sunflowers are those named Globosus, Californicus, Uniflorus, Cucumerifolius,
and *Plenissimus*. The second in the list is known as the "double" sunflower, the flower consisting of ligulate florets entirely; the colour is a rich full orange. A beautiful plant for the spacious border is *Helianthus argophyllus*, with silvery leaves, and a dwarf sunflower, known as *H. nanus*, may go with it as a pleasing manageable plant. All these are best raised from seeds in the manner described above.

The best of the perennial sunflowers are *H. multiflorus*, single and double, *H. giganteus*, *H. dicaricus*, and *H. decapetalus*. Where only one sort is wanted, the first should be preferred. The perennial kinds are propagated by division.

A splendid companion of the sunflowers, and a first-rate shrubbery plant, is *Harpalium rigidum*, which may be described as intermediate between a helianthus and a rudbeckia. The flowers have ray florets of a full orange yellow, and a bold disc of black or blackish-brown.
SWALLOW-WORT GENTIAN
SWALLOW-WORT GENTIAN.
Gentiana aselepiadcea.

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. aquanlis), 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. Andrewsii*), 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.
THE SPIDER-WORT.

Traciscantia 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 aesthetic; 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
FAMILIAR GARDEN FLOWERS

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 cuncti*), 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.
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 "Geraniaceae," 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.
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, gillas, 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
BLUE NEMOPHILA. 73

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.
MIMULUS.

Mimulus latens.

All the species of mimulus, or monkey-flower, as it is very often called, of which there are about twenty known, are natives of the New World, and for the most part of its western coasts, their range being from Columbia in the north, to Chili, south of the equator. They are all moisture-loving plants, and therefore in cultivating them that must be considered. They are, however, so accommodating that almost any kind of soil will suit them, if supplemented by the water-pot; but they like good living, nevertheless, and fine specimens cannot be grown without the aid of rich loamy soil. The plant before us may be treated as a hardy perennial, and left out to take care of itself in the open border; or it may be treated as an annual, and will flower the same season if the seed is sown in March. But better still is to treat it as a greenhouse plant, raising a fresh stock every year
by seeds sown in heat, and flowering them early in a warm greenhouse. By this treatment, with the plentiful use of water, very fine plants may be produced. We have seen them so grown for Covent Garden Market, and a house containing a few thousand of the plants in flower presented a very pretty appearance, the brilliant green leafage being agreeably varied by the gay flowers, which have a yellow ground and are grotesquely spotted.

There are in cultivation several distinct varieties of this mimulus, differing chiefly in the colour of the flowers. And there are several other species equally worthy the attention of the amateur florist, both because of their beauty and the extreme simplicity of the cultivation they require, the point of chief importance being to indulge their love of moisture. *M. cariegatus* has flowers curiously painted purple and yellow; *M. roseus* has flowers of a bright rose, in some degree resembling the newer kinds of begonia; *M. cardinalis* has scarlet flowers; and *M. cupreus* is of the colour of copper when just acquiring the dulness that follows soon after polishing. All these ripen seed in plenty, and may be most easily multiplied; but they may also be propagated from cuttings, or by division of the somewhat fleshy roots.

The best known of the family is the odorous musk plant (*M. moschatus*), a delightful occupant of the cottage window, and a most important plant at a cottagers' flower show. This is but rarely seen in the garden, but it is a good plant to occupy part of a border near a summer-house, in company with such things as the lily of the valley and the woodruff, to diffuse a delightful perfume. In common with these favourites, the musk has but to be left alone and it will reappear with them in the spring, and grow
thriftily, provided only it can obtain enough moisture. For growing in pots, the old-fashioned common musk is not now good enough, a variety with larger flowers and a finer habit of growth having been introduced through Messrs. Harrison, of Leicester. This is as fragrant as the original, and immensely superior in all other respects. This sort is known as “Harrison’s musk.”

The generic name mimulus refers to the gaping mouth of the flower, which may be likened to that of an ape—hence its more homely name of monkey flower. The figworts, to which order it belongs, are invariably characterised by the irregularity of the corolla, of which we have interesting examples in the mullein and the calceolaria. It will be observed in the figure that the calyx is also irregular, one of the toothed lobes being longer than the rest. All the species are remarkable for the irritability of the stigma. The two lobes lie rather wide of each other when not irritated, but if touched with a bristle they instantly close. This movement is, no doubt, connected with the process of fertilisation, and is a parallel to that of the berberis flower, the stamens of which suddenly clasp the stigma when touched at the base of the filaments with a bristle or needle.

The yellow mimulus is used in Peru as a pot-herb, and probably all the species are capable of a similar appropriation. The figwort family, however, is not to be hastily looked to for the supply of edible vegetables, for here we find the nauseous and narcotic foxglove, the bitter snapdragon, and the astringent speedwell—

“That lifts its eye of the softest blue
To the younger sky of the selfsame hue.”

But if we do not get much food for the body out of the
figworts, they do not lack in food for the soul, very many of the genera being renowned for beauty, whether as wayside weeds or as valued occupants of the garden.

The following lines by Mr. W. Roscoe may suitably follow these remarks:

"God of the changeful year!—amidst the glow
Of strength and beauty and transcendant grace,
Which on the mountain heights, or deep below
In sheltered vales, and each sequestered place,
Thy forms of vegetable life assume;
—Whether thy pines, with giant arms displayed,
Brave the cold north, or wrapt in eastern gloom,
Thy trackless forests sweep a world of shade:—
Or whether, scenting ocean’s heaving breast,
Thy odoriferous isles innumerable rise,
Or under various lighter forms imprest,
Of fruits and flowers, Thy works delight our eyes;—
God of all life! whatever those forms may be,
O may they all unite in praising Thee!"
ALMOND.

*Amygdalus communis.*

The almond is an emblem of haste, for its flowers appear before the leaves are ready. In the Book of the Prophet Jeremiah we read: "The word of the Lord came unto me, saying, Jeremiah, what seest thou? And I said, I see a rod of an almond tree. Then said the Lord unto me, Thou hast well seen: for I will hasten my word to perform it" (i. 11, 12). Allusions to the almond tree occur in other places in the Divine record. The presents sent by Israel to Joseph, in the second journey into Egypt, when Benjamin was taken, included "a little balm, and a little honey, spices, and myrrh, nuts, and almonds" (Gen. xliii. 11). The almond was one of the subjects selected for the decoration of the golden candlestick of beaten work that
was to be employed in the tabernacle (Ex. xxv. 33); and
the symbol obtained special significance when the rod of
Aaron, in the tabernacle of witness, brought forth buds,
and bloomed blossoms, and yielded almonds (Num. xvii. 8).
These passages testify to the importance of the tree in
Palestine, of which it is a native; and they suggest an in-
heritance of ideas from the further East, for the almond
has a considerable range in Arabia and Persia. To be valued
for its fruit by nomads little given to cultivation was a
matter of necessity. But we are taken into the region of
ture poetry when it is perceived that the acceptance of
the almond as a symbol under Divine sanction turns upon
its flowering first amongst all the trees of the wood, and
in such haste that it cannot wait to appear in its proper
garments. To the Oriental mind, sensitive to imagery, and
leaning to the ideal in the observation of nature, such
simple facts are pregnant with deeper meanings than
Western thought is capable of grasping without an effort.

But in these less fanciful lands the almond does not
escape such honours as poets can bestow. Spenser crowns
the great Arthur with the bloom of the immortal tree by
means of a splendid figure:—

"Upon the top of all, his lofty crest—
A bunch of hairs discolour'd diversly,
With sprinkled pearl and gold full richly drest—
Did shake, and seem'd to dance for jollity.
Like to an almond-tree ymounted high
On top of green Selinis all alone,
With blossoms brave bedeck'd daintily,
Whose tender locks do tremble every one
At every little breath that under heaven is blown."

A good old Greek fable associates the tree with human
sympathies in a more serious way than in the allegory
of the East. Servius tells that Phyllis was changed by the gods into an almond tree as an eternal compensation for her desertion by her lover, Demophoon, which caused her death by grief. But when it was all too late to claim his bride, Demophoon returned, and the tree, leafless, flowerless, and forlorn, was shown him as the memorial of Phyllis. He clasped the tree in his arms, and thereupon it shot forth a new growth, and flowered gloriously—an emblem of the true love that even death cannot extinguish.

The almond is one of the best of garden trees, for when its early and delightful flowers have given us gladness, its green leaves appear, and render it a most cheerful occupant of the shrubbery. In the southern counties it is no uncommon event for the tree to produce a fair crop of fruit; but in less favoured parts the production of fruit is a rare occurrence.

In a few gardens in France and Belgium the almond is grown for its fruit, in which case the tender-shelled varieties are preferred, and the cultivation is the same as for the peach. In this country we occasionally meet with the almond as a fruit tree grown in pots in the orchard or peach-house, in which case a variety known as "The Princess" has the preference, because of its dwarf habit and readiness to fruit when young. The fruit of the almond, as it falls from the tree, may be likened to ugly, ill-favoured peaches; it has a downy coat of a dingy green colour, with a tinge of sad red; and a thin layer of austere flesh covers the shell of the proper almond. The sorts are distinguished as sweet and bitter; but the climate has something to do with that part of the business.

For ordinary garden purposes the common almond, as grown in all good nurseries, is sufficient. For the culti-
vator of choice trees we have a double-flowered variety, called *flore pleno*; a variety with large rosy flowers, called *grandiflora rosea*; a variety with drooping or "weeping" branches, called *pendula*; and one with long leaves like a willow, which is appropriately named *salicifolia*.

There are some dwarf almonds in cultivation that are well adapted for the front lines of shrubbery borders, and also to grow in pots to force for winter flowers. The best of these are known or classed as cherries, but for present purposes they may be regarded as almonds. Their trade names are *Cerasus Japonica*, *C. Japonica multiplex*, *C. Japonica multiplex alba plena*. 
BEGONIA.
THE BEGONIA.

*Begonia hydrocotylifolia.*

UBEROUS begonias have been discoursed upon in our several series, and the plant before us gives occasion for a brief essay on the species which belong more especially to the stove, and are, with very few exceptions, of no use whatever for the decoration of the open garden. By the term "stove" may be understood, in this connection, the tropical plant-house and the warm greenhouse, and it is advisable to set out with the word "stove" to impress upon the reader the fact that these begonias love warmth and moisture, and the treatment that suits many greenhouse plants will only bring disappointment if applied to them. It is a fact, however, of some importance that many of the tender begonias may be grown in an ordinary greenhouse by an expert in plant culture. A common
greenhouse becomes a stove for a brief space of time, and in the course of a year a certain number of plants of good renown may be so managed that their whole season’s growth may be completed by a careful management of fire-heat at first, and sun-heat afterwards, without the aid of a stove, and in a greenhouse of the most commonplace description. We have seen collections comprising many of the best species which are grown for their flowers, and the whole of the section of *Begonia rex*, which are grown for their magnificent leaves, brought to perfection in a common greenhouse, and the secret of success lay in the judicious timing of their growing and resting to suit the circumstances. The most important point, perhaps, is to keep them so dry in winter that frost will not prove injurious, and, on the other hand, to keep them sufficiently moist that vitality will not be impaired; for to be dust-dry is deadly to begonias, but when wintered at a low temperature they must be kept as dry as possible short of killing them by drought. One reason of their endurance in a nearly dry state with a low temperature is the bulky nature of the root-stock, which, in some sense, serves as a bulb or corm. So long as this is not frozen, and can be preserved from shrivelling, it has the power to grow when aided by warmth and moisture; therefore when wintered in a common greenhouse the tender begonias require to be started into growth in spring on a steady hotbed, or in the sunny corner of a greenhouse, where they can be a little shaded and have careful watching, until the growth and the season have both advanced to render such special cares no longer necessary.

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

The best begonias for winter flowers are Carminata, Chelsoni, Fuchsioides, Hydrocotylifolia, Parvifolia, Rosafiora, Sedeli, and Victor Lemoine. For a stove pillar there is scarcely a finer pillar-plant to be found than Begonia Fuchsioides; it will grow to six feet or more if planted in a border, and clothe the pillar with a splendid mass of leafage, overlaid with brilliant flowers. It is not a difficult
matter to flower the hardy tuberous-rooted begonias in a
warm greenhouse in winter, and they will always require
less heat than the stove kinds.

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

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

*Hydrangea hortensis.*

FAMILIARITY is said to breed contempt, but that is scarcely true. It is, however, certainly true that familiarity breeds indifference, and the subject before us affords an illustration. There is no truly familiar garden flower more thoroughly appreciated than the hydrangea, and there is not one that is so commonly mismanaged by amateur cultivators. To grow it well is like conjuring—most easy and simple when you know how to do it, but a great difficulty when ignorance, that is not bliss, lies in the way of the worker.

The hydrangeas are hardy shrubs, although commonly regarded as proper to the greenhouse. They are, indeed, “proper” to the greenhouse, and the common *H. hortensis* now before us is a great favourite for the window, thousands of plants being raised by the market.
growers every year for sale for that purpose. But the statement should be repeated that all the hydrangeas are hardy in what may be called the most favourable districts in the British Isles, say in England everywhere south of the Trent, and along the whole western sea-board from the Land’s End to the shores of Loch Fyne. Ireland, from Kerry across diagonally to Down, will generally be found to suit the hydrangea; and of the Channel Islands there need be nothing said, because hydrangeas, escallonias, myrtles, and shrubby veronicas love a humid atmosphere and an equable temperature, the extreme of which, downward, does not often touch the freezing-point.

Now some one will say that generalities are insufficient. Very well. If you will inquire in the village of Stoke Newington, where the climate is very stiff for a northern suburb of London, and the soil is a stiff damp clay, you may hear of a plant of Hydrangea hortensis that has stood in an open front garden for some fifteen years, and every summer produces hundreds of immense heads of flowers, spreading over a space that may be roughly described as about as large as an average breakfast-parlour. It is but a short time since we saw in Broadwater, near Worthing, a gigantic plant of Hydrangea japonica, which is a peculiar plant in showing a mixture of perfect and imperfect flowers, but always a beauty, and commonly regarded as more tender than H. hortensis. The plant was taller than a man, and broader than any man could measure by the outstretch of his arms, but the people there thought it nothing remarkable, and suggested that many more such might be found. To close this paragraph it will be well to say that the hydrangea accommo-
dates its ways to places that are too cold for it, in just the same way as the fuchsia.

There is a grand hardy plant known as Hydrangea paniculata, which is of somewhat wiry growth, and produces huge conical heads of flowers, that are sometimes pure white, but more often tinged with pink or purple. This is somewhat of a novelty, but for all that a cheap thing, everywhere obtainable, and so accommodating that almost any soil will suit it. But this brings us to the subject of soil for hydrangeas generally, and the first thing to be said is that, in common with a large proportion of thisty plants, they prefer a fat soil: that is to say, a fertile loam, and a considerable proportion of fat manure may be dug in when a plot is prepared expressly for them. Planting should be done in spring; hydrangeas are not hardy enough to be planted in autumn, but if planted in May, and sheltered for a time, they will make a good root-hold, and establish themselves firmly for the winter, and become hardy occupants of the garden for any number of years. From the middle of June to the middle of August they may have any amount of water, with alternations of weak liquid manure. Indeed, in a porous soil the use of weak liquid manure may be continuous, but the operator should keep in mind that manure in excess of what a plant can absorb becomes to it as poison. The word "assimilation" is the key to the problem.

The greenhouse culture of the hydrangea is very simple. The best time to strike cuttings is in the summer, when the shoots of the season will be found to strike readily with or without the aid of bottom heat. The amateur who loves to produce flowers in plenty, and is not concerned about rarities, may be advised to make a special pet of the hydrangea, and
one way of so doing will be to raise a stock of young plants every year, and, as they flower, keep the tables and windows and conservatory gay with them. Yearling plants with one or two great heads of rosy pink flowers on them delight all who see them, for even the crusty botanists have to admit that they are "buxom," if not delicately beautiful. As for larger plants, to make them well consists in simply giving them larger and larger pots as required, the soil always to be rich and light, and made of any handy materials that answer to the description. When the plants grow freely—and not before—the pots should be placed in pans of water an inch or so deep, to enable them to help themselves, for every moment that these thirsty plants lack moisture they go backward instead of going forward.
AMERICAN COWSLIP.

Dodecatheon Mendia.

An American cowslip ought to be like a cowslip, but this flower is more like that of a potato. The comparison cannot degrade the flower, because the flowers of many sorts of potatoes are beautiful in the most proper sense of the term. A very choice Alpine known as Ramondia Pyrenaica comes nearer to the likeness of a potato than the Dodecatheon before us, but it is far removed botanically, and the resemblance is but superficial. But an American cowslip ought also to be like a lettuce, for as much is implied in the generic name; but the resemblance of the leaves to those of a lettuce is less apparent than that of the flowers to those of a potato. It is a primulaceous plant, and therefore comes near to the cowslip in affinities, as it does also in cultural requirements—
least in some degree. It is more of a woodland plant than the cowslip, loving shade and a peaty or leafy soil; but it is not particular, and if once comfortably located will do better left alone than with any possible attentions. The plant is a native of Virginia and other parts of North America, whence, according to Philip Miller, it was sent by Mr. Banister to Dr. Compton, Bishop of London, in whose garden at Fulham Miller saw it growing in the year 1709. Linnaeus adopted for it a generic name from Pliny, and a specific name in honour of Dr. Mead, a physician of great eminence, son of the Rev. Matthew Mead, a Presbyterian divine, who was minister of Stepney during the government of Oliver Cromwell.

Here is the story as told lang syne. According to Philip Miller, to whom we are indebted for the first proper account of its cultivation, the American cowslip flowers at the beginning of May, and the seeds ripen in July, soon after which the stalks and leaves decay, so that the roots remain inactive till the following spring. It is propagated by offsets, which the roots put out freely when they are in a loose moist soil and a shady situation; the best time to remove the roots and take away the offsets is in August, after the leaves and stalks are decayed, that they may be fixed well in their new situation before the frost comes on. It may also be propagated by seeds, which the plants generally produce in plenty; these should be sown in autumn, soon after they are ripe, either in a shady, moist border, or in pots, which should be placed in the shade. In the spring the plants will come up, and must then be kept clean from weeds; and if the season proves dry, they must be frequently refreshed with water. Nor should they be exposed to the
sun; for while the plants are young they are very impatient of heat, so that I have known great numbers of them which were growing in the full sun destroyed in two or three days. These young plants should not be transplanted till the leaves are decayed; then they may be carefully taken up and planted in a shady border, where the soil is loose and moist, at a distance of about eight inches from each other, which will be room enough for them to grow one year, and by that time they will be strong enough to produce flowers.

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

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

There are hundreds of plants of this class that are perfectly hardy, and require no elaborate preparations for their maintenance, yet in some gardens refuse to thrive, while in others they may be said to grow "like weeds." Very much, of course, depends upon that "magic touch" which one can give to the work and another cannot.
In cases where the elements are at war with choice hardy plants, there is a way out of the difficulty by growing them in pots, in frames, and in unheated plant-houses, as we then obtain for them protection against keen winds and the smoke and dust of the town.

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

Convallaria majalis.

His lily is a flower of the poets, and its occurrence in our series reminds us of the fact that although the poets have much to say of lilies in general, they have very little to say of lilies in particular. The lily of the valley is a happy exception, for the poets condescend to notice it by name, whereas of the Turk’s-cap, the martagon, the pomponium, the ever-welcome common white, and the more than ever-welcome gold-striped lily of Japan, the poets do not say much, and appear as though they would prefer to say nothing at all. What ails them that they can say words enough to clothe a mountain about lilies in general, but nothing about lilies in particular? Keats speaks of this lily as an emblem of purity—

“Valley-lilies, whiter still
Than Leda’s love,”

which is very well in its way, but the allusions to the
flower are few, and even then not always in the best of taste. Thomson rejoices in the seclusion—

"Where, scatter'd wild, the lily of the vale
Her balmy essence breathes,"

which is commonplace enough; and Prior associates this humble flower with the glories of King Solomon, when he ought to have known that the scarlet martagon lily is the only one that can claim to be the "lily of the field."

The plentifulness of the lily of the valley as a British wilding is not known to the average of holiday botanists, because they do not travel much in the season when it flowers. It is most abundant in woods and glens, from far north to far south, and is mostly a haunter of moist, mild, and shaded places in the western parts of Britain, but is scarcely known as a wilding in Ireland.

As a garden plant it is nowhere seen to such advantage as in half-wild places, where anemones and violets and primroses are scattered without order in a miscellaneous mosaic. Then there are uses for the four or five varieties, and the effect of these in irregular masses is far too delightful to admit of being set down in black and white. The double variety is a little "lumpy," perhaps, but makes a fine button-hole flower. The rosy variety is exquisitely beautiful, but no one knows of its beauty who has not seen it in considerable masses, running hither and thither, mixed with the white. The striped-leaved variety does not flower so freely as the green, but makes amends by its foliage.

The common lily of the valley may be planted anywhere and everywhere with some prospect of a successful result. But the best place for it is in a somewhat damp soil, in a position partially shaded, and being planted, the
best way to manage it is to keep it clear of weeds or over-reaching plants, and otherwise leave it alone.

The variegated-leaved lily of the valley is never, or but rarely, seen to advantage in the open ground. To do justice to its exquisite beauty, it should have greenhouse or frame culture. Any light soil will suit its requirements, or say sandy loam and clean leaf-mould, or any mixture that suits the average of greenhouse plants. It is an important matter to plant a number of crowns in suitable pots and pans, and leave them undisturbed for several years. If they have reasonable attention in respect of air, water, and light, being shaded from strong sunshine, and liberally supplied with water in the growing season, they will fill the pans with a lovely growth of leaves, richly striped with alternate bars of pale yellow and vivid green, and the flower-spikes will rise in plenty.

For the supply of winter and early spring flowers the lily of the valley is largely grown; there are varieties known as "Dutch," "German," and "home grown." These differ by points an amateur need not be concerned about, because all are good; but the men who grow them in large quantities for the flower markets are bound to distinguish minute differences, for they influence values, and tell with effect upon the final returns of the season's business. For the mere production of crowns for forcing there is really no necessity to resort to importation, but as the imported lilies are constantly in request, it may be concluded the market growers find it more to their advantage to obtain the crowns ready made than to be at the trouble of producing them. The reader of this may, however, be well supplied with stock for the forcing pit by dividing and planting a sufficient number every year, and a generous soil
should be selected for the business as large well-ripened crowns are required.

Hardy plants that are adapted for forcing are numerous and cheap, and of great importance to those who value early flowers. But there is not one amongst the many that is more valued by those who appreciate such things than the common lily of the valley. To force it is easy enough; for in truth, if but one golden rule be observed, it matters little by what means, whether on a tan bed or a hot-water tank, or an old-fashioned flue, the plant is persuaded to produce its fragrant flowers. The one golden rule is to force slowly in a temperature of 50 to 60 degrees, and not beyond that range. A skilful market grower will force these lilies in a temperature of 70 to 90 degrees, and do well, but the amateur who grows flowers for his own delight should not resort to such extreme measures.
RED AVENS.
UNDER the name *Geum coccinum*, at page 13 of the Third 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. coccinum* 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. coccinum*, 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 duly 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 advan-
tage 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 again—
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."
WINGED BROOM.
WINGED BROOM.

*Genista sagittalis.*

WINGED broom is a broom with wings, or phyllodes which are much developed petioles, and serve all the purposes of leaves in the economy of the plant. It happens that several members of the pea family, to which the plant before us belongs, are favoured by nature with the possession of wings. There is the winged pea (*Tetragonolobus*), the pods of which are furnished with four wings, suggestive of the windmill that is wanted for grinding the seeds. There are acacias with winged stems, such as *A. alata*. We have in our woods the crimson grass vetchling (*Lathyrus nissolia*), which never produces true leaves, but only flattened leaf-stalks; the yellow vetchling (*Lathyrus aphaca*), which has sagittate stipules that do duty for leaves; while in the
greenhouse may perhaps be found *Bossiaea rufa*, which has flattened stems, and does very well without leaves proper.

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

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

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

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

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

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

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

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

Portugal broom (Spartium album or Genista alba). This has slender, furrowed, erect branches, a few leaves of one, two, or three hairy leaflets, and an abundance of flowers, white or pink.
Greenweed (Genista tinctoria) is a very pretty native shrub, met with on moist peaty land, and well adapted for the garden rockery. There is a double variety that makes a fine display of its yellow flowers.

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

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

Round-headed broom (Cytisus capitatus) is a very hairy plant, with flowers in a round head.
ROSY CLARKIA.
EMINDERS of David Douglas are plentiful in the garden, and more especially amongst the hardy annuals that are collectively described as "Californian." The favourite annual here figured was discovered by Mr. Lewis on the Kooskoosky and Clarke rivers in North America, but the discovery only resulted in placing it in the herbarium, and from there it obtained a place in books. For the embellishment of our gardens by this beauty we are indebted to Douglas, who found it in plenty in dry, open, sandy soils, near streams, from the great falls of the Columbia on the north-west coast of America to the Rocky Mountains. He sent seeds to the Horticultural Society, and thus secured its diffusion, to the advantage of all the lovers of a flowery garden.
It is an interesting plant, with flowers of singular construction. In their simplest form they are four-parted, the petals boldly three-lobed, the stigma not less boldly four-lobed agreeably with the number of sepals and petals, the stamens eight in number, four of which are sterile, and thus in this particular the fourfold arrangement is undisturbed. Dr. Lindley, in describing the family of Onagroids to which the Clarkia belongs, says the number 4 prevails through every one of the floral organs. In the Circaea or enchanter’s nightshade the number is halved, there being but two sepals, petals, &c., and in Lopezia, a near relative of the last-named plant, the customary number seems to be still further interfered with, for that genus shows but one stamen; in reality, however, there are two stamens, one of them perfect and bearing an anther, the other sterile and in the form of a spoon-shaped petal. Although the petals are in general of a large size and in a high state of development, yet there is a tendency among the species to lose them; I have seen an entire plant of Clarkia pulchella with every flower apetalous—that is, without petals. One species, Clarkia Skinneri, is always so.

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

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

But spring sowing is not the best way to secure a bloom of these hardy annuals. The proper time to sow is autumn, not earlier than August and not later than September. In late cold districts the first week in August will be none too
soon; in warmer places the sowing may be deferred to the end of September. In the neighbourhood of London the last week of August is the best time. Sow on a well-drained bed of poor sandy soil in a quite open position sheltered from the north, and thin as soon as the plants appear, leaving them about two inches apart. In the month of February, when mild weather is prevailing, carefully transplant to the place where the plants are to flower, having first prepared the ground, for it will be a kind of execution to stick them into stubborn pasty stuff that has been in no way ameliorated for the purpose.
GLOBE FLOWER.
LOBE flowers and marsh marigolds may be described as the finest of all the buttercups that adorn moist meadows and riverside wastes. They may be seen flowering together in the same fields, but generally speaking the marsh marigold, or *caltha*, has finished its course with joy and settled down to quiet rest ere the globe flower furnishes its golden cups to make the meadow gay. The British globe flower has been honourably associated with the custom of decorating churches with garlands, but is now not much sought for that purpose. But we have seen it plentifully used in the well dressings in the Peak country, making a beautiful fringe to the inscription wrought out in other flowers, "Water is the gift of God," or "Health
and temperance are good old friends." It is one of the palest coloured and least polished of the yellow flowers of the ranunculus family, but it is a truly beautiful flower, with some fine points for the observant artist, and will serve as a lesson for the observant amateur in its love of a deep rich moist soil, for this is a special peculiarity of a majority of its kindred.

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

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

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

*Trollius Asiaticus*, the Asiatic globe-flower, a native of Siberia, is a distinct and fine plant, the leaves more divided than those of the European plant, and of a richer
colour. The flowers are of a rich golden-yellow colour, and more expanded. The plant grows to a height of eighteen to twenty inches, and flowers earlier than *T. Europaeus*. As it does not often ripen seeds, it is usually multiplied by division.

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

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

The fuchsia is beyond doubt one of the most beautiful of our familiar garden flowers. Now, everybody knows how beautiful it is, and as gilding refined gold is a wasteful excess, we solemnly promise not to waste another word in general remarks on that matter. But of its interest? It has no place in history, and no poet of renown has written an ode in its honour. No. But it represents the floral wealth of certain of the richest and poorest parts of the earth’s surface. It extends as a genus along the Pacific sea-board of South America, from sunny Cuenca to the cold and cloudy Falkland Islands, and if aided with just a little warmth would no doubt run into the Land of Desolation, and compete for supremacy as a vegetable curiosity with that nondescript thing the Kerguelen cabbage. But it loves a land of luxury nevertheless, for we meet with
thickets of fuchsias, like thickets of bracken, only a million times more glorious, in the rainy parts of Brazil, and Peru, and Mexico, and Venezuela, and Guatemala, and learn therefrom that the plant does not disdain warmth, and is decidedly fond of moisture. It is in no respect a wall flower, for it simply cannot live on a dry crust, and so the key to the cultivation of the fuchsia is to provide it with a rich soil in close proximity to the water-butt. If only for one thing the fuchsia is an interesting plant, for an English cultivator, who understands it as well as any man living—Mr. Cannell, of Swanley—has declared that fuchsias should be grown exactly as radishes are, and, absurd as it may sound, it is almost exactly true. Well, to grow really tender, mild, sweet, delicate radishes, you must grow them quickly—a warm, rich, moist bed, plenty of light and air, and be quick about all the business. And this, in the concrete, is just the right rule for the fuchsia grower. Be quick about it. Put the cuttings in a moist, warm bed; put the young plants in a light and very rich soil; do not give them very much air, and be sure they have enough water; and shift them into larger and larger pots until they are as large as you require, and then let them flower, and presto! you will have fuchsias. You may call them radishes if you like, but it will be more proper to call them plums, because the double purple fuchsias are like miniature plum-trees when in flower, and the fruits of all fuchsias are eatable, and make good tarts, provided they are assisted with lemon-juice, sugar, &c. &c., for their own proper flavour is somewhat flat, green, and poverty-stricken. To grow handsome pot fuchsias is about as easy as anything in the way of first-class floriculture; but comparatively few amongst the many who put their hands to the
task attain to complete success. And why do they fail? Well, sometimes through using a poor, harsh soil, but more often through exposing the plants to cold draughts, and giving insufficient water, for the fuchsia is a thirsty plant, and some of the hardier species are natives of climates that are characterised by the peculiarity that "the rain it raineth every day" and every night also.

Hence another point of interest. It is in the moist climates of Britain that we meet with the most splendid garden fuchsias. In the Isle of Wight, in Dorset, Devon, Cornwall, in a few places on the Welsh coast line, and in many places in the West of Scotland the fuchsia becomes a gigantic fountain of coral drops, a genuine surprise and wonder to the noble tourist who, in London, or Norwich, or Hull, has seen the garden fuchsias make a wiry growth of one to two feet at the utmost, and look like pensioners in arrear of their pay at the best of times. The bushes in the west, more especially of the splendid Fuchsia Riccartoni, are gigantic, and one might almost say that an army could encamp in the pleasant shadow of one of them. The equable temperature of the western coast is greatly in their favour, but the humidity of the atmosphere is the chief cause of their lustiness, and the amateur florist may take the hint, and if bent on having splendid fuchsias would do well to make special arrangements with the water company. While waiting to make peace with the purveyors of drink, let him give attention to the growth of radishes, remembering that fuchsias are to be grown in nearly the same way.

The splendours of the exhibition fuchsias are well known, but few, even of experienced horticulturists, are familiar with the more distinctive and noble species,
such as *F. serratifolia*, *F. corymbiflora*, and *F. spectabilis*, which are unique in their characters as conservatory plants. Of the extreme capabilities of the more vigorous species, we have examples in the Crystal Palace at Sydenham, where several of the pillars are clothed to the very top with fuchsias, the result being a wondrous display of vegetable beauty. In the small greenhouse, *F. fulgens* is invaluable for its large and handsome leafage and its exquisite long-tubed flowers.
HEPATICA
HERE is nothing gained by separating this old friend from its relatives the anemones, but at our own choice we may use the name given above, or we may designate it *Hepatica triloba*. The three-lobed leaf is a distinct peculiarity, but the flowers have a character of their own, and may always be recognised as representing a distinct section of the anemones. The double red variety here figured is one of the best of the series, but all are useful; and the amateur may with propriety secure a complete set, and may then find pleasure in keeping them. Strange to say, these hardy, thrifty, long-lived plants are often lost in gardens through various unpardonable accidents. A sure way of killing hepaticas is to transplant them frequently. But the grand slaughter of the innocents in the garden border is accomplished by
indiscriminate digging, the evils of which course have frequently been referred to in these pages.

The best soil for hepaticas is a deep loam. They will thrive in clay, and one condition of success is good drainage. The double varieties are multiplied by dividing the roots, but the amateur who has had but little experience in propagating and nursing plants may be advised to leave hepaticas alone, for they are amongst the cheapest of hardy plants, and it is likely to prove in the end cheaper to buy than to produce them. However, we must describe the process. The strongest clumps are to be lifted immediately after flowering and carefully divided into separate crowns, each division to have as many roots as can be secured to it. These are to be at once planted in fresh soil and carefully closed in, and lightly covered with some very fine earth. If the soil is well drained, they will in the course of the season become established. Care must be taken that they do not suffer through drought or long-continued sunshine before they have taken hold of their new position. They are thrifty things, but they will certainly perish if sorely distressed, and it is simply because they are not sufficiently looked after by novices that they so often fail, even though properly handled in the first instance. When growing wild the hepatica is a wood-side plant, and this fact should teach us that when punished by division of the root, the plant should not be further punished by exposure to drought and long-continued sunshine. Trade propagators pot the little pieces and nurse them in frames. This insures to them a cool moist atmosphere favourable to renewal of growth. It is better, however, to plant them out and give them a little special attention for a time.
To raise hepaticas from seed is quite a simple matter, and may be recommended to the amateur as a profitable proceeding. There is one precaution needful, and this being observed, the rest is easy. Sow the seed instantly on its becoming ripe. It must not be put away, or it is likely to perish. It is always safest to sow such seeds in large pans or shallow boxes, which should be filled with light rich sandy loam. Scatter the seed thinly, cover with a mere dusting of fine soil, and lay slates or tiles over to keep the soil moist without having to give water until the plants appear. Should watering become necessary—for the seed must never be quite dry—carefully dip the pans or boxes in a sufficiently large vessel filled with water, or leave them in it resting on a pot or brick a sufficient length of time to cause a complete moistening of the whole body of the soil, when they may be taken back to the frame. By this mode of action you avoid displacement of the seed; in fact, the surface soil must not be disturbed at all. Any weeds that rise under the covering slates must be carefully drawn out as soon as they are large enough to be taken hold of.

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

Keep the seedlings in their seed-boxes freely ventilated, and in the month of April remove them to a sheltered shady border near at hand, and convenient for observation. As the little plants make their proper leaves, carefully lift them out with a thin slip of wood and plant them in a border prepared for the purpose; the soil must be sweet and sandy, without manure, and a little shaded. When located in this border, your work as regards the "raising" may be considered finished. You will now wait to see them flower, and they will be in no hurry to tell you what they are and what they mean. But they will pay you well for all proper patience, and as they come into flower you will form a judgment of their merits.
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 *Diclytra 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.
EARLY TULIP.
ARDEN tulips have become so freely hybridised that it is no easy matter to determine to which particular species they severally belong. Practically it is of little consequence, and probably in the genus Tulipa, as at present defined, we have not more than half a dozen species, although in the books we may find a register of forty or fifty. For garden purposes we have a series of distinct types that may be recognised as specific. They are *T. precocis*, the head of the early tulips; *T. gesneriana*, the head of the late tulips; *T. sphaeroceras*, the head of the Van Thol tulips; and *T. turkeica*, the parrot or ridiculous tulip, a delightful absurdity, rich in colour, as various as folly, and as ugly as any hater of florists' flowers can desire. Others that remain for the curious collector, such as *T. sylvestris*, the British woodland tulip, *T. clusiana*, a very
delicate tulip, and *T. celsiana*, that is like a large yellow crocus, will be found by the earnest man easily enough, for are they not in the trade catalogues, priced at so much per dozen, and needing only love and patience to grow them perfectly? The tulip figured is the famous Keizerskroon, a most fitting representative of the entire section of early tulips, whose collective name is Legion, and whose proper patrons are the souls comprised in the word everybody, and that are so free and easy in their habits of life that they can live and prosper anywhere. As a matter of fact, the early tulips are the cheapest, most showy, most accommodating, and (when skilfully handled) the most lasting of all the spring flowers; and thereby hangs a tale.

In all current histories of the tulip it is commonly assumed that the late tulips, descended from *T. gesneriana*, were the subjects of the extraordinary speculations of the seventeenth century, collectively known as the "tulip mania." But the late or "florists'" tulips have no such special distinction, for of the variety named *Lac van Rhyn*, a single bulb of which in the days of the mania was sold for 175 gulden, is still in existence, and is an early tulip, much prized as a bedding, and obtainable at a few shillings per dozen. So, again, the *White and Red Bordered*, known in Holland as *Wit en Rood borde*, each bulb of which was sold at 2,000 gulden, is still in cultivation as an early variety, and commands a very low price as a thing of little account. The true state of the case is set forth at length, on the basis of documentary evidence, in a lecture on the tulip by the present writer, the text of which will be found in the *Gardeners’ Magazine* of March 26, 1881. It is therein conclusively established that the early florists favoured the early and the late varieties about equally; and Parkinson
and Hanbury concur in representing the early section as of the first importance, from the high standard of technical judging that prevailed in days when the tulip was in the height of its fame. The tulips to which the florists give attention now are late tulips exclusively; they can see no merit in the early ones, and from their point of view there can be no question as to the soundness of their choice. The early tulips give us none of the rare pencillings of flames and feathers; the pure white basis proper to a tulip of high breeding is unknown amongst them; and the short tazza form, smooth and evenly expanded, like Hebe's cup, they cannot show. Consequently, the early tulips have been thrown out of the select catalogue, and the lovers of gay flowers who care little for fanciful markings that are very costly, but care much for abundant colour at a low price, may be fully gratified, and after all may still congratulate themselves that the cheap early tulips were once upon a time valued above rubies, and that only wealthy persons could afford to use them for the adornment of their gardens. When the bulb season is in full tide at Haarlem, the tulips make a marvellous display of colour. In the later days of April the hyacinths are in perfection, and as they decline at the dawn of the merry month of May, the early tulips come forth in sheets of crimson, scarlet, purple, glittering silver, and refulgent gold. In the way of flowers, it is a question if any place in the whole world can match the display at Haarlem and Overween, where some 700 acres of land are occupied with bulbs, the great bulk of which bloom at one and the same time. To see the sight is, comparatively speaking, such an easy matter, that it may be recommended as a proper subject for an excursion, especially, too, as it is at the very time when the Netherlands are in every way
the most attractive, for as we travel through the country the new spring growth of the pastures and the myriad golden flowers that deck the water-courses constitute in themselves an entertainment of the most refreshing character, calculated, in behalf of any one whom a long winter has troubled, to restore the energies and drive dull care away.

The early tulips require a rich sandy soil, in which they should be planted in October or November. Soon after flowering the leaves die down, when the bulbs should be lifted and stored away. A collection of the varieties will be found full of interest and usefulness, as they make a delightful display when planted in clumps in the garden borders. For planting in masses, the best varieties are Couleur Cardinal, Couronne Pourpre, Duchesse de Parma, Keizerskroon, Pottebakker, Yellow Prince, and Thomas Moore. These are all single, and rich in positive colour. The best doubles for beds are Rex Rubrorum, Imperator Rubrorum, Tournesol, Gloria Solis, and Couronne des Roses.
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
Philippines. This work our great John Ray, the forerunner of the greater Linnaeus, 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 Kämpfer, in his "*Amaenitates,*" 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 sasanqua* are dried to mix with tea for the communication to it of a grateful odour. A Nepaul species, known as *Camellia kessi*, 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.
Honesty.

Lunaria biennis.

His 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 lunaaris, the Bobbonac or satin flower; and John Gerarde figures it well, while the other John figures it very poorly. Gerarde saith "the stalks are laden with many flowers like the stocke gillifower, of a purple colour, which, being fallen, the seede commeth forth contained in a flat thimme 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 sáms, 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 cleave, is thin and cleere shining, like a piece of white satten newly cut from the p geece.” 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 fraternuity."

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.'
TURBINATE
BELL-FLOWER.
Campanula turbinata.

His 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. *ulicina*, a silky or woolly little herb, bearing a loose pyramid of deep blue flowers. *C. cespitosa*, very dwarf and tufty, the flowers deep blue. *C. carpathica*, 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. Ruineri*, 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.
LTHOUGH 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. Linnaeus 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 Linnaeus 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."
GUELDER ROSE.
GUELDER ROSE

Viburnum opulus.

GUELDER ROSES are plentiful in Guelderland, which lies due east of Amsterdam, and extends from the Zuider Zee along the course of the Rhine to the junction of the Lippe. In the woods and gardens about Arnhem the trees are conspicuous in early summer by reason of their abundant "snowball" clusters of flowers; and in autumn the leaves and berries combine to augment the glow of colour that warns us of the coming winter, when the birds will consume the berries and the leaves will fall to the ground. In this country the Guelder rose is also a wilding, but rather scarce, whereas its near relation, the wayfaring tree (Viburnum lantana), is quite common, more especially in Kent and Essex. It is often
a fine decoration to the hedgerows when bearing an abundant crop of variously-coloured berries—some glowing scarlet, others as black as jet.

The common Guelder rose (*Viburnum opulus*) or snowball tree, that is so familiar in our gardens, does not differ from the wild tree of the same name in any essential particular. It is, however, much handsomer, as the result of long cultivation, and probably the improved forms were introduced to our gardens from the district of Holland its familiar name commemorates. Gerarde describes it as known to the Dutch as "Gheldersche Roose," but he says nothing of the origin of the garden variety; and Dodoens, who describes it as "Marris (or marsh) Elder, Ople, or Dwarffe Plane Tree," throws no light upon the subject. It is of little consequence; but as names are often, like caskets, filled with information for such as can unlock them, we shall assume that in the case before us we have direct suggestion of the indebtedness of our gardens to the horticulture of the Low Countries.

The snowball tree makes a growth in many respects like the common hedge maple, and the leaves are similarly lobed. In the early summer the leafage is of a brilliant light green colour; and in May and June, when the flowers appear, often in prodigal profusion, the round white clusters show with striking effect, and serve as a beautiful link between the coming summer and the passing spring. Between the showy flowers of the garden tree and the less attractive flowers of the wild tree some differences are observable, and they are of the kind which may be seen in a peculiarly interesting manner in that beautiful hardy shrub, *Hydrangea Japonica*. In the centre of the clusters the flowers are small, and show stamens and pistils; but those
on the circumference are large and sterile. The garden tree agrees in these particulars, but affords a less interesting study, owing to the crowded state of the clusters.

In every garden the Guelder rose should have a place, and it is particularly well adapted for the mixed shrubbery, as it does not suffer much if a little crowded. For a sheltered spot, or as a dwarf tree for a wall, we have *Viburnum PLICATUM*, with beautifully-plaited leaves of a fine dark green colour and handsome heads of white flowers. This is good enough for pot culture in a cool conservatory, where the climate is too cold for its well-doing in the open ground. Another and quite grand plant is the great-headed Chinese snowball (*Viburnum macrocephalum*), which comes near to our *V. lantana* in foliage, but bears immense heads of snow-white flowers. This also is worthy of pot culture in gardens that are too cold for it. A large-leaved species from Japan, *V. macrophyllum*, is worth attention, but is of less importance than the two named above.

A favourite tree on southern and western coasts is the evergreen laurestinus (*Viburnum tinus*), a tree of neat habit and beautiful appearance that puts forth an abundance of white flowers during the winter, its season ranging from November to April, as the climate of the district or the weather of the winter may influence it. This beauty is so much valued that it is often grown to a great size in tubs, being annually pruned or clipped to keep it to a round or elliptic form, to serve the same purposes in garden decoration as the sweet bays and orange-trees, also grown in tubs. In many parts of the country the laurestinus is useless as a garden tree, but then it is still one of the best of subjects for pot culture in the cool conservatory, and associates usefully with berried aucubas, skimmias,
pyracanthes, and escallonias, all of which are easily managed as pot plants, and by some of the more spirited amateurs are grown in quantity to group with specimen chrysanthemums in November and December. In the northern suburbs of London the laurestinus scarcely prospers in the open ground; but in the western suburbs, and particularly along the valley of the Thames, it grows and flowers almost as freely as at Bournemouth. It is not many years since we saw by some houses at Strand-on-the-Green, near Kew, laurestinuses rising above the level of the roof.

The viburnums are partial to a strong soil, and the common snowball tree will thrive in places that are too damp for many of the better kinds of flowering trees.
YELLOW HEATH.
YELLOW HEATH.

*Erica Cavendishiana.*

*Rica* Cavendishiana derives its name from having been formerly known as the "Duke of Devonshire's golden heath." Its history is involved in some obscurity. It came into being anterior to the days of illustrated horticultural periodicals, and therefore obtained less attention than such a fine plant would have attracted at the present day on first appearing as a novelty. It was raised by the Messrs. Rollison and Sons, of the celebrated Tooting Nurseries, by fertilising the flowers of *Erica depressa* with the pollen of *E. Patersonii*. Both these have yellow flowers, and the Cavendish hybrid is a finer plant than either of them, and particularly well adapted for specimen cultivation. In the times that are spoken of as the "palmy days of Chiswick," the Cavendish
heath was eminently fashionable, and Mr. Fairbairn, of Clapham, used to exhibit enormous specimens in a wondrous state of health and beauty. But even in these degenerate days we occasionally see it in perfect trim as a specimen plant, among the most successful cultivators of recent years being Mr. Thomas Baines, formerly of Bowdon, and Messrs. Cole, of Withington. At the present time among the ablest men in handling the plant are Mr. Cypher, of Cheltenham, and Mr. Tudgey, of Waltham.

Between the growing of gigantic specimens, and the neat little plants that suit an amateur's greenhouse, there is considerable difference. A collection of heaths may be formed and kept at little expense, and to speak the truth about them, they are very easy to grow, and also very easy to kill; and the failures that occur usually represent a waste of delicate attentions. When housed with bedding plants and kept warm and close all the winter, and liberally and frequently watered, they die and do not come to life again. They belong to the more breezy and bracing climates of the Cape, and in cultivation require free ventilation, very moderate allowances of water, abundance of light, and to be guarded against all extremes of heat, cold, drought, and humidity. The men who succeed best with heaths group them in airy spacious houses with other plants of like character, such as headaromas and eacrises, and other "hard-wooded plants." But a considerable proportion of the Cape heaths are so nearly hardy that, with ordinary care, a brick pit without any fire-heat will suffice for their safe wintering. The great point is to protect them from damp, towards effecting which perfect cleanliness and systematic ventilation will contribute in the most direct manner.
It is likely that many have failed with these plants through over-solicitude in respect of the best soil for them. They will certainly not live in lumpy clay or any calcareous soil. But they are not so particular as is commonly supposed. They like rough sandy peat, pebbles, broken flower-pots, and are not particular as to gravel if it is a little loamy or peaty, and not pasty or loaded with salts of iron.

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

The following ericas are named as suitable to form an interesting collection for a beginner, as they are amongst the most useful and least troublesome of their beautiful family—Hyemalis, Willmoreana, Persoluta, Rubens, and Sindryana, for winter flowers; Florida, Caveendishiana, Erquisita, and Aristata, for flowering in the spring; Irbyana, Jacksoni, and Retorta major, for the summer;
Depressa, Austinnana, and Tortilisflora, for the autumn. They do not flower at the same time from year to year; they observe what may be called general rather than particular seasons, and hence where there is anything like a collection spring-flowering kinds will be found to flower in autumn, and some few will be nearly always in bloom.

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

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

_Silene pendula._

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

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

These several species vary slightly in relative hardiness, but they are all hardy enough for the experienced cultivator of Alpine plants, who has a golden rule to cheat the frost when the frost appears to have a silver rule to cheat him. They all agree in requiring full exposure to light
and air. Shelter they may have to advantage; but the shelter of a near ledge or shelf or cap of rock is far better for them than the shelter of near walls or trees, and a close, damp spot is one in which they will suffer from frost sooner than in any open place that is not literally ploughed by the east wind. But with all such plants losses will occur, and it is a part of the Alpine gardener's duty to provide accordingly, which brings us face to face with the golden rule.

A rockery may be furnished at but small cost, and may be kept furnished and for ever beautiful, and for ever changing in its beauty, with but little trouble, provided the selection of plants be made to suit a certain limited range of resources. We have advised our readers on this elementary, cheap, and pleasing system of rockery management. The iberis, saxifraga, sedum, campanula, thymus, potentilla, and innumerable other genera offer us plants that will grow almost anywhere, and that no winter will destroy. For the rockery that is to take care of itself there is no dearth of plants, and many of them are equal in beauty and human interest to any that the world carries on its flowery breast. But the enthusiast in plant-collecting does not content himself with these. He will go into regions where difficulties prevail, and take plants from the mountains that will, if they can, resent the removal to the garden, where there is no certainty of snow to protect them in winter, and no certainty of ever-trickling moisture amongst stony grit to keep them growing happily in summer. The collector meets the difficulty with a golden rule, which consists in having duplicate plants of all the kinds that might slip through his fingers, these duplicates being in pots protected by frames, constantly
under observation, and completely within control as regards their exposure to the weather, the water and light allowed to them, and the soil in which they are to pass their probation. It is a very simple matter, but it must be reduced to system, or there is absolutely nothing in it. But when reduced to system, there is joy in it. Many of the potted drabas, erodiums, silenes, meums, anemones, gentianas, primulas, and the like, will flower early in the frames, and be of the greatest value for adorning the greenhouse or the table; and when disaster happens to their bretbren of the rockery, they will be ready to take their places, for they constitute the reserve forces that are to fill the gaps when the troops exposed to fire and frost are cut down.