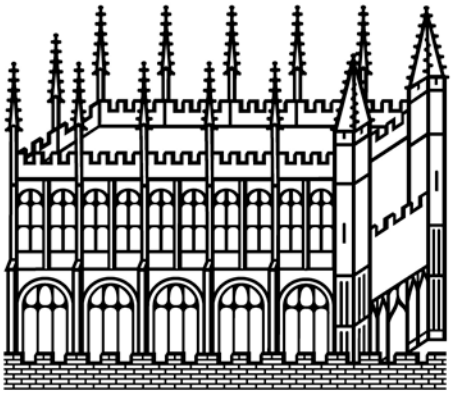


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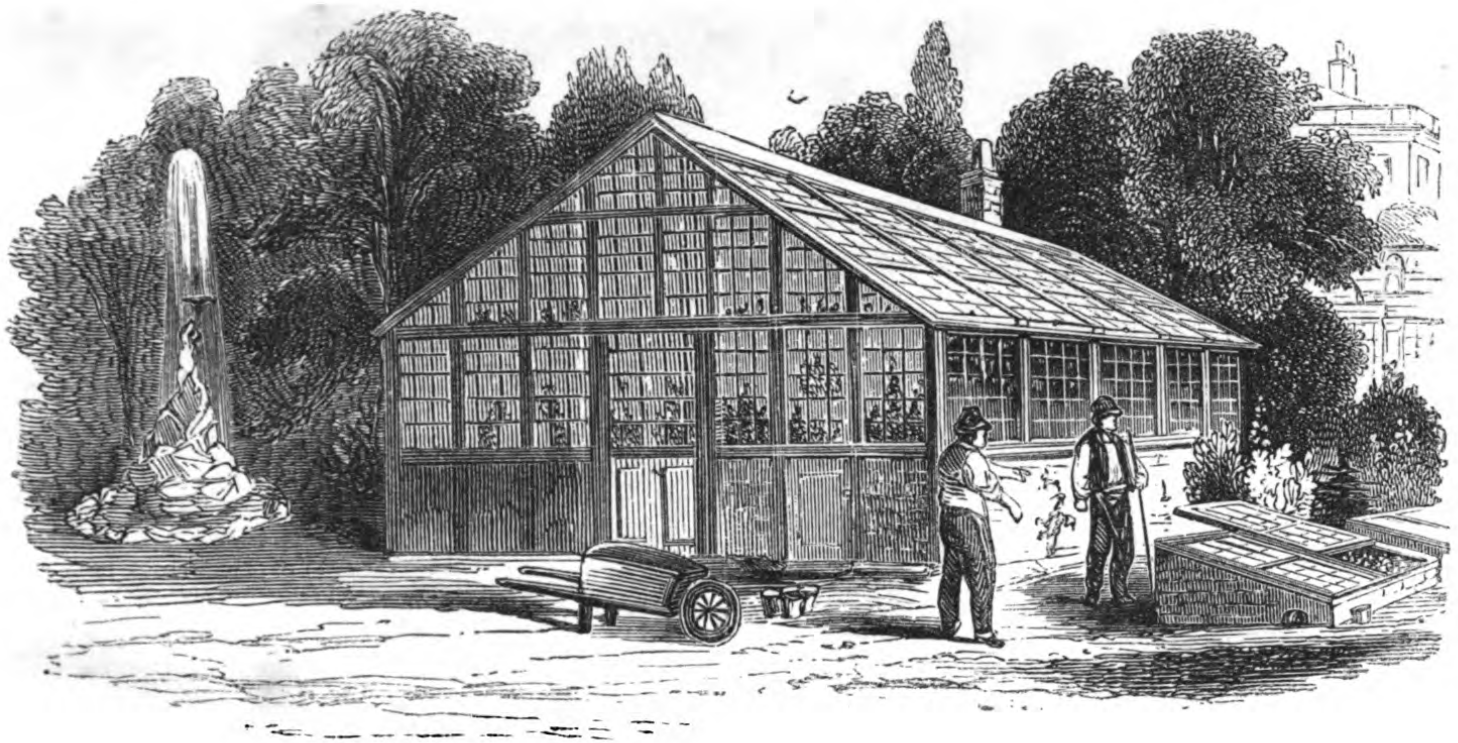


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GLENNY'S HAND-BOOK

TO THE

FLOWER GARDEN & GREENHOUSE,

COMPRISING THE

Description, Cultivation, and Management

OF ALL

THE POPULAR FLOWERS AND PLANTS

GROWN IN THIS COUNTRY;

WITH A

CALENDAR OF MONTHLY OPERATIONS

FOR THE FLOWER GARDEN AND GREENHOUSE.

BY GEORGE GLENNY,

EDITOR OF THE "GARDENER'S GAZETTE," AND THE "GARDENER AND PRACTICAL FLORIST," AUTHOR OF "THE PROPERTIES OF FLOWERS AND PLANTS," "GARDENING FOR COTTAGERS," "GLENNY'S HAND-BOOK TO THE FRUIT AND VEGETABLE GARDEN," "GLENNY'S CATECHISM OF GARDENING," ETC. ETC.

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INTRODUCTION.

THE following short lessons for the cultivation of all the popular flowers and plants, will be acceptable to those who grow a little of everything, and who have general garden establishments. But there are many who devote their time and attention so exclusively to particular subjects, that they require something more elaborate with reference to those particular favourites. To guide such, I have at the end of each important lesson, referred to those complete treatises that have appeared in the *Horticultural Magazine*, than which, I will venture to affirm, there are none in the English language more intelligible, more usefully elaborate, nor more to be depended on for the soundness and universal success of the practice they recommend. I have, at various periods, from the year 1832, put forth many original treatises on the culture of flowers, many of which had been scarcely mentioned, and some very little understood. From that period down to the present day, I have endeavoured to promote Floriculture among gentlemen amateurs, by showing the easiest method of cultivating favourite plants. It has always been my aim to avoid mystery, to use the plainest and simplest way of doing every thing, from the mixing of the compost to the perfecting of the plant. I differ from most of the previous writers on the culture of many subjects, for I recommend nothing that is difficult to obtain, or offensive in its nature; I have, as far as I could do so, made gardening a pleasure; where I have practised according to the directions of other writers, and therefore in some instances

benefited by their experience, I have invariably acknowledged my obligation to the author. I do not pretend that the numerous plants and flowers mentioned here, are all that could be cultivated, but I will say they comprise the best, the most popular, and the least troublesome of all our floral beauties, and few persons will desire a better collection than may be found among the subjects in the present work. Although there are general directions given with each individual plant, there are some operations that apply to a vast number, and upon which I may be excused for giving a few observations: for instance, grafting, budding, layering, striking cuttings, potting, watering, forcing, and such like; and with a few hints upon these subjects, I beg to consign this work to the patronage of those who, like myself, hate mystery, and feel disposed to forgive many faults, if the one great advantage of being understandable to people of ordinary capacity be constantly kept in view.

G. GLENNY, F.H.S.

GRAFTING.

This is the joining of one variety of plant, of which we can only obtain a piece, to another, which should be a stronger plant of the same family, for the purpose of propagating the more scarce one, or at least, making one and sacrificing the other. We will suppose it to be a rose to be grafted on a brier, or a variegated or scarce holly on a common green one, or a Daphne indica upon a Daphne pontica, or Spurge laurel; or a new variety of any thing, upon an old or common one. Cut the two to fit as close as possible, never mind about the plan of the fit, nor the size you are fitting it on to. The barks of the two plants, that is to say, the edges, must be close and touch each other on one side; and if the piece you put on is only a tenth of the size of the stock you put it to, it will in time grow and cover all the rest; cut both with a sharp knife and make them fit close, bind them carefully and firmly, then cover with wax or clay to keep the air away until they unite

and the graft begins to grow, when the covering may be taken off, and afterwards the tie may be removed. The time for grafting is when the plant begins its growth for the season.

BUDDING.

This is performed when the leaves of plants have grown to their full size, and the bud is to be seen at the base of it. The relative nature of the bud and the stock is the same as in grafting; make a slit on the bark of the stock, which reaches from half an inch to an inch and a half down the stock, according to the size of the plant; then make another short slit across, that you may easily raise the bark from the wood; then take a very thin slice of the bark from the tree or plant to be budded, a little below a leaf, and bring the knife out a little above it, so that you remove the leaf and the bud at its base, with the little slice you have taken. You will perhaps have removed a small bit of the wood with the bark, which you must take carefully, and with the sharp point of your knife and your thumb; then tuck the bark and bud under the bark of the stock, which you carefully bind over, letting the bud come at the part where the slits cross each other. No part of the stock should be allowed to grow after it is budded, except a little shoot or so, above the bud, just to draw the sap past the bud.

LAYERING.

This is performed on many kinds of plants that do not strike root very readily from cuttings. It is performed by bending a shoot or branch down under the surface, and pegging it there to prevent it from springing up again. Some plants will strike root very readily when so pegged under ground: all the laurels, hollies, rhododendrons, pyruses, laurustinus, and shrubs in general; but the operation is greatly facilitated by intercepting the flow of sap in any way; for instance, by notching the branch or shoot half way through, by twisting the shoot, or if it be of a tough nature, by bending it short, so as to break the texture, and it strikes root at that place. The branch should not be pegged too deep, as the air is as necessary to it as the moisture, and care must be taken always to keep the ground moist. The most simple way is to cut a slit or to notch half through the wood, and to let this notch be just under a joint or leaf.

STRIKING CUTTINGS.

This is for the sake of propagating plants. Every part of a plant contains the rudiments of every part of a new one, and nature disposes it to perfect itself; that is, to make good whatever may be its deficiencies. Therefore, pieces of a plant, the smallest sprigs or cuttings, placed under proper conditions, will soon make root for themselves and become complete plants. We are not, however, to suppose that the same treatment must be given to all cuttings. The circumstances under which one family of plants would form roots, would cause another to die. One great stimulant to the growth of roots is bottom heat; that is to say, the soil should be as warm, or a little warmer, than the atmosphere. Another, is the exclusion of air from the leaves. Generally speaking, the wood of one season's growth of all hard-wooded plants with one joint above the surface and one joint under the surface, placed in a bottom heat (that is, in a moderate hot-bed, or plunged in tan) covered over with a bell-glass and kept moderately moist, will strike. Many plants, such as geraniums, pansies, and other green or succulent subjects, will strike if planted in a common border. But there are so many requisites for the different kinds of plants, that we have gone fully into the subject with the principal tribes, when describing the treatment of the plants.

POTTING.

In potting plants, always see first to a proper drainage at the bottom. This may be secured by always putting broken pots one-fourth of the depth of the pot. In placing the plants in the pots, let the roots be free, and spread them round near the surface, rather than jam them close together. In shifting plants from one pot to another, have plenty of room all round the ball of earth, to insure that the soil that is to be added entirely surrounds the roots. When the space is limited, and the soil cannot go down close and compact, the fibres at the side of the old ball lose their nourishment whenever they are in the hollow. In pressing the soil down, be careful not to injure the fibres.

WATERING.

Water no oftener than is necessary, but do it effectually. Never fall into a common error, that a plant which requires but

little water, is to have a small allowance each time; it ought to have as much at each watering as will go through every part of the soil, and no more, till it is getting dry. Remember, that a plant may be starved for want of water, and yet have twice as much as it requires; a little every day would not wet half an inch down the pot, and three-fourths of the soil below would be quite dry. Some plants require water once a day, some once a week, some once a month, but whenever they do have it, every grain of soil in the pot should be wetted.

FORCING.

The art of forcing is to bring plants out of season; but as we are treating on flowers, and the system is very easily managed, a hint is enough. Always begin with a low temperature, such as a greenhouse; and when the growth has fairly begun, increase, until you have given them sixty-five degrees with impunity. If roses were brought from the air, and placed in a temperature of sixty-five degrees, they would be spoiled; but bring them into forty degrees, and increase five degrees a-week, and they will bloom finely. Rhododendrons, azaleas, and plants of all kinds, may be gradually brought to flower early; and when flowering is done, finish their growth without any check. Let them rest in the shade out of doors, and bring them into the house again early; they will force better every year with less heat and greater beauty, but they must be grown as carefully after the bloom is over, as they were in forcing, and have plenty of water during the bloom and the subsequent growth.

GENERAL MANAGEMENT OF A GREENHOUSE.

A greenhouse is a structure for the protection of plants of temperate climates, requiring in this country but little artificial heat. In winter, greenhouse plants should have an average day temperature of about forty-five degrees, and thirty-six or eight at night. In very cold weather, however, it is better to let the temperature stand at thirty-eight or forty by day, than to have recourse to much fire heat. Under the same circumstances, it is enough if the night temperature is kept fairly above freezing point. The less fire heat employed the better. If required, the growth of any plants may be pushed on a little in February or March, by giving gentle fires in the early part of the day. In all the mild weather of winter, admit air freely,

by opening the sashes; but so as not to cause a draught. In frosty, windy, or foggy weather in winter, avoid opening the greenhouse. As spring advances, give more and more air; but when the growth is tender, especially avoid opening to cutting winds, or so as to cause draughts: in such cases, keep the windward side closed, and open the other as wide as possible. A greenhouse should never be shut up close when the sun is shining, or when the external temperature is as high as forty degrees, nor opened when it is frosty; and so that this is secured, the time of opening and shutting matters little. It is usual, however, in winter, to open as much as may be thought judicious, between 10 a.m. and 2 p.m.; and in spring, the house is opened about 6, or 8, or 10 a.m., and closed about 4, or 6 p.m., according to the state of the weather. In winter, water as seldom as possible, so that the soil never gets quite dry: the same rule applies in summer, only then, instead of seldom, the operation becomes much more frequent.

GENERAL MANAGEMENT OF FRAME PLANTS.

In the case of frame plants, or plants requiring less warmth than a greenhouse affords, the preparation of the frame is a most important matter. The bottom should be firm and impervious to water, so that it may be kept as dry as possible, for which end, it should slope in any one direction, so that water spilled in watering the plants, may run into a gutter to be carried away outside the frame. The pots should stand upon a trellis a few inches from the floor, and this trellis is best made of narrow slips of wood, placed a little space apart. The sashes should be removed from such plants, whenever the temperature is as high as thirty-four or five, except it be raining, (in which case they must be kept on to keep the plants dry,) or the wind is very keen and nipping. In these cases, the sashes should be tilted in such a way as to admit as little of the wet or wind as possible. As the mild spring weather draws on, such plants as these require no protection whatever: at that season, they bear our climate.

HAND-BOOK

TO THE

FLOWER-GARDEN AND GREENHOUSE.

PRIMULA (Primrose).—We make this our opening subject, because of the appropriateness of its name to that position. The name of the genus is derived from *primus*, the first; and it is applied to this family on account of the early period at which many of its members come into bloom. It is a genus of herbaceous perennials, almost without exception hardy, and the whole of the species are dwarf-tufted growing, and beautiful-flowered plants. *P. vulgaris* is the common primrose, so familiar to every one, and the favourite of all: of this, there are double-flowered varieties of several distinct colours; the crimson, white, and lilac being, however, the best varieties. These all grow best in a cool, somewhat moist, situation, and prefer a soil of light loam intermixed with decayed tree leaves; the moisture, however, must not be stagnant, or some of the delicate varieties will be very liable to rot off. They are propagated by dividing the tufts into separate crowns with roots attached, which may be done in spring, and the young plants planted out in situations, such as that already indicated, for the summer. By the following spring, they will mostly become strong blooming plants. One variety of primrose produces a bunch of several flowers on the top of a common stalk; and this appears to be the origin of the garden plants known as polyanthuses, of which many florists' varieties are cultivated. Many other of the hardy species of *Primula* are extremely beautiful subjects in a pot-collection of Alpine plants: we may instance *P. amœna, villosa, scotica, farinosa, minima, helvetica,* and *cortusoides,* all of which have the flowers of some shade of reddish purple; *P. verticillata, Stuartii, Palinuri,* and the species *P. auricula,*

with yellow blossoms; and *P. nivea, Munroi,* and *involucrata,* of which the blooms are white. These may all be grown in peat and loam, and require chiefly to be kept cool in summer, and not at that season to lack moisture. *P. denticulata* is also a beautiful kind, either for pots or the borders, and has sweet-scented lilac flowers.

POLYANTHUS (*Primula*).—The polyanthus is a well-known hardy perennial, blooming early in spring. Its flowers, variegated and richly coloured, are elevated several on the top of a stalk common to all. Of the same habit are the wild species *P. elatior* and *P. veris,* the former the oxlip and the latter the cowslip, both of which, together with the common primrose, are favourite subjects for planting in shrubberies, and in other shady parts of the flower-garden and pleasure-ground. These, with the polyanthus, prefer a heavier loamy soil than that recommended for the double primroses. Any of the foregoing may be taken up with a trowel when in flower, carefully placed in a flower-pot, well watered, and set in a closed hand-light for a day, and may then be placed in the window, or elsewhere, while their beauty continues.—See *Horticultural Magazine,* Part 15.

AURICULA (*Primula Auricula*).—The cultivated varieties of this species of *Primula* are commonly known as the auricula. There is hardly a flower that presents such an appearance of artificial structure as the auricula; the surface of it is covered with a powder like a butterfly's wing, and like that, the touch of the finger brings off a part of it, and spoils the specimen. A stage of these flowers is a beautiful sight, and we are astonished that a collection of them is not always the very first object that a lady secures in a well-appointed garden. Some of the old books on the culture of this flower, recommend the most nauseous and filthy composts for its growth, and this may have done something towards deterring persons from attempting it; it is, however, the height of absurdity to pretend that there is any necessity for anything disagreeable. Loam from rotted turves, two-thirds, and decomposed dung fairly rotted into mould, one-third, will be found an excellent earth for them to grow in; and if the loam be a little adhesive, which it ought not to be, some silver sand may be mixed with it. The pots in which they grow should be one-third full of broken pots, to make a complete drainage; and in potting the plants, the fibres of the roots

should be spread out all round. The best way is to put the soil into the pot in the form of a cone, highest in the middle, and nearly as high as the edge of the pot; put the plant on this, with the fibres spread all round, and press it down on the soft light mould, so that the collar of the plant shall be just below the level of the edge of the pot; press the soil a little to the roots as you fill the pot, and water it. The auricula may be grown to perfection in a common garden frame, with a glass to keep off heavy rains and hard frosts. It requires but little water all the winter. In February, the surface of the mould should be stirred a little and thrown out, and the pots filled up again with a top dressing of decomposed dung of poultry, sand, and cow-dung rotted into mould, equal parts; and from this time they may be regularly watered, have air on fine days, and be covered at nights and in frosty weather. In April, they must be shaded, for the sun would spoil the flowers. —See *Horticultural Magazine*, Part 17.

CHINESE PRIMROSE (*Primula sinensis.*)—The Chinese primrose, sometimes called *P. prœnitens*, is one of the most useful of all plants for greenhouse decoration in the winter season, and is admirably adapted for culture as a window plant. This very pretty plant, which forms a very important feature in the greenhouse at a period of the year when there is little else in flower, is so much improved since its introduction, that the flower may be seen twice or three times the size it used to be, with colours more brilliant, the form circular, and in every way improved; and this entirely from the ordinary mode of improving races by raising plants from seed. To raise these properly, sow the seed in June, towards the latter end, in wide-mouthed pots, for it is better to have a good body of mould under seeds, than the reduced quantity in seed-pans. Use a compost of two-thirds loam, from the upper spit of a pasture, and one-third sand; knock the pot down several times while filling it, to settle the compost down, and fill quite even with the top edge of the pot. Sow the seeds very thinly, but evenly, and press the surface down with the palm of the hand, and then sift some soil very finely all over it, but not to cover more than the thickness of a shilling. Put the pot on the stove, or a pinery or vinery; or, for want of these, in a common hot-bed, not too violent. Water with a brush dipped in water, holding the hairs upwards, and drawing your hand along the hairs, which will throw the water off in such small particles

that it will not disturb the seed. When they are up, give air and water as occasion requires; and when they have formed rough leaves, push these out an inch apart all over a seed-pan, or as many pans as will hold them. Here they may grow a month, or until they touch each other; then pot them off singly, in forty-eight sized pots, with a soil composed of loam from rotted turves, decomposed cow-dung, turfy peat, and sand. and put plenty of crocks to reach one-third of the height of the pot. They may all be well watered, to settle the earth about their roots. Place them in the greenhouse, close to the light; there they are to have as much air as they can have in mild weather. As we like to see what pleases us, here we let them bloom, but only enough to enable us to select the best for further pains and trouble. Directly you see which is worthy, mark it, and pick off the bloom; when they fill their pots with roots, remove them to eight-inch sized ones, and continue them near the light. When they flower again, they will throw up immense trusses. There are already various colours of red, and rosy lilac, white and mottled, smooth edged, and fimbriated, but they are all of a family, and that a good one.

HEPATICA.—A pretty genus of very dwarf, hardy, herbaceous perennials. The common hepatica, *H. triloba*, is one of the earliest of the spring flowers, and blooms before the leaves make their appearance. There are three colours—pink, blue, and white; and of these, there are also double and single. These plants require a well-drained border, for they do not succeed well in moist or stagnant earth. They deserve a place in every choice garden for their dwarf habit, bright colours, and early appearance. The plant increases by side shoots, which spread it over a large space of ground if a season or two undisturbed; but they are increased in number by separating the root, so that each heart or side shoot should become a plant. These may be all planted in nursery beds, about six inches apart, and watered in to settle the earth about their roots. In one season they will be large enough to plant where they are to remain. The double are better worth notice than the single, and therefore are mostly cultivated; but the double white is very scarce, if not altogether lost, and therefore the single white is grown for the sake of the variety of colour. The roots should be parted in July, and not into pieces too small, for although the smallest bit would in time spread, they would be two or three seasons before they were fit to plant in

the borders. The beds must be kept clear from weeds, and the earth stirred upon the surface between the plants in February.

SENECIO (Groundsel).—An extensive genus of composite plants, of which the most popular members are the cinerarias, a race of plants originated from *S. cruentus, tussilaginoides, L'Heritieri, populifolius*, and perhaps some others; and the *S. elegans*, of which the double varieties are very handsome. The *S. elegans* is an annual requiring to be sown in the open border in the month of April, and again in June for a succession. It is, however, by no means worth growing if the double-flowered varieties can be obtained; these may be multiplied by cuttings, and treated as perennial shrubs. The cuttings are struck in July or August, and removed at once into small pots; they are kept in cold frames until there is danger from frost, when it is customary to remove them to the shelves near the glass, in the greenhouse. If for blooming in pots, they are shifted on like cinerarias; but if for planting out in the flower-garden, where they make admirable beds, they may stand in the small pots till March, and then be removed into pots two sizes larger, in which they remain until they are planted out in the beginning of June, by which time they will be in flower. The young plants should be freely topped during autumn and winter and the early spring, to make them bushy. The double white and the double purple are distinct and very desirable kinds; and we remember to have seen, many years ago, a still handsomer kind, with full double light purple flowers, and the foliage beautifully variegated with white and purple. Semi-double forms are not uncommon among seedling plants, but it is the full double ones only that should be grown. They grow about a foot and a half high.

CINERARIA (*Senecio.*)—The cinerarias are a race of showing greenhouse plants, mostly of herbaceous habit, and growing from one to two feet high. They appear to have originated from some species of *Senecio*, as *cruentus, populifolius, L'Heritieri, tussilaginoides*, &c. Formerly known as a common-looking blue or purple star flower, about the size of a common daisy, it is rapidly becoming one of the most favourite florists' flowers. Its richness is increasing in the new varieties, which form a circle, merely by means of the denseness of their petals, and there is no end of colours and shades—purples, lilacs, blues,

bronzes, and variegations; some like shot-silks, others like gems, abound now of every size, and all degrees of form. Loam, dung and peat-earth in even proportions answer well for soil, and a cold frame and glass that will merely keep out the frost, is all the accommodation required by way of protection. The seed may be sown in spring; the seedlings pricked out in July; potted off for winter quarters by September. This is for new varieties; but to multiply old ones, the side shoots or offsets must be taken off when the bloom declines, and potted in small-sized pots, or the very small plants may be put five or six round the edge of a pot. As these advance, they must have more room. The principal management in winter is to be sparing of water. If seed is not wanted, the bloom stalks ought to be cut down as soon as they begin to decline, for it weakens the plants to allow the seeds to ripen, or even swell. The closer the petals are at the ends, the better the flower; because as it should be a circle, the more close the ends, the more perfect the sort.—See *Horticultural Magazine*, Part 10.

CLARKIA.—A genus of showy free-flowering annuals, of which two species, *C. elegans*, and *C. pulchella* with its white variety, are worth a place in the flower borders; the two forms of the latter species, one having white, and the other rose-coloured flowers, are preferable; elegans also has rosy-coloured flowers. The Clarkia is a popular annual, though not one that everybody admires; some think it has too much foliage for the quantity of flower, and it looks poor from the large space its outline occupies, and the narrowness of the petals; still, as is said at starting, it is a popular annual. The plant grows about a foot and a half to two feet high, has abundance of flowers, of a singular form like a fanciful cross, but the petals are very narrow, and it is only the mass of flowers, in a patch of it, that makes it tolerable as a border flower. It may be sown with other annuals in April, or in pots in February, to be ready to turn out almost in flower; half-a-dozen plants in a patch are enough, so that if there are many more, they had better be thinned. They only want the common soil of the garden, and are none the worse if it happen to be not very rich, for the less luxuriant the foliage grows, the better the plant looks. Those sown in pots must be placed in the greenhouse, and thinned so that not more than half-a-dozen should be left growing in the pot. In May the pots may be turned out and plunged in the borders, or the balls of earth may be planted

without disturbing anything. The seed is easily saved if there is any desire to do so.

ANEMONE (Windflower).—An extensive genus of hardy herbaceous perennials, mostly having tuberous roots. The florist's anemone, *A. coronaria*, is imported in large quantities from Holland, grows very dwarf, comprises many varieties of colour, in which blue, red, purple, white, in fact all but yellow, may be found in all their shades. The single and semi-double ones bloom for months, and some of them at all times of the year, though if they die down properly they should have a rest. The (so-called) double ones are not so properly; they have large petals forming a disk, and the centre is composed of little shapeless florets; generally the petals are one colour, and the florets another. The tubers should be planted three inches deep, and six inches apart, in good loam from a rich pasture; and if this be not at hand, let some well decomposed cow-dung be mixed with the common earth of the garden. The single and semi-double ones seed freely, and may be raised with the greatest care from seed. The seed forms a sort of cottony head or pod, and if not watched as they approach ripeness, the wind blows it away. Rub the seed into a little sand to separate the grains from each other; sow them thinly on a four feet wide bed, neatly dug and levelled; rake in the seed well, that it be covered, and nothing more need be done till they are up and large enough to handle; then, wherever they are too thick, raise some up with a knife, and manage to leave the bed so that the plants are three inches apart all over, and plant those you remove the same distance on another piece, or on a continuation of the same bed; they only want weeding and watering till they bloom. (See *Horticultural Magazine*, Part 25.) There are many other very beautiful kinds of *Anemone*. Of these, the most remarkable are the *A. japonica*, a fine autumnal blooming kind with red flowers, growing two feet high; and *A. vitifolia* of the same size, also blooming in autumn, with white flowers; between these varieties have been raised. Other very distinct and handsome spring flowering kinds are *A. hortensis* and *A. Pulsatilla*, or the pasque flower; these grow about six inches high, and both have purple flowers. Besides these, there are some smaller growing kinds, very pretty if grown in large patches, or to plant about in shrubberies: these are *A. nemorosa*, the wood anemone, with white flowers, of which there is also a double flowered variety; *A. apennina*, blue; and *A.*

ranunculoides, yellow. All these are free-growing plants, propagated by separating their tubers when in a dormant state, and succeeding in any light loamy soil. The *A. japonica* forms a very fine bed in the flower-garden, and is propagated by innumerable little buds or bublets, which are produced on all its roots.

ADIANTUM (Maiden-hair Fern).—A genus of ferns, of which some of the kinds should find a place in all gardens; they are very beautiful, and possess in their frouds the remarkable property of repelling water. One kind—*A. Capillus-veneris*—is indigenous to this kingdom, growing in sheltered caves; and this may be grown under shelter of a frame or in a greenhouse under a hand-glass, or in a stove. (See *Moore's Handbook of British Ferns.*) *A. cuneatum*, *formosum*, and *hispidulum* are handsome growing greenhouse species; most of the remainder require a stove. They require a damp close atmosphere, and therefore, if in an exposed situation, should be kept under a hand-glass, even in a greenhouse, the ordinary climate of which is usually by no means damp enough for ferns. They may be potted in turfy peat soil, mixed with silver sand, and containing the proportion of one-half of broken lumps of charcoal and soft freestone or brick, of the size of nuts and walnuts. The pots must be well drained. They are propagated by division of the plant, generally with facility.

ADLUMIA.—An old-fashioned plant, not often seen. The only species grown, *A. cirrhosa*, is a climbing annual growing two or three feet high, with finely divided leaves, and white flowers, not very handsome. It grows in common soil, and is increased by its seeds.

ABRONIA.—There are two species of this genus in cultivation, both of which are pretty plants with trailing stems. They are not hardy, but succeed if protected in a dry frame in winter, and planted out in a dryish situation in summer. *A. umbellata* has rosy red flowers in heads like those of a verbena standing up a few inches from the soil. *A. mellifera* has the flowers orange-coloured. They should be grown in sandy peat soil, intermixed with about a third part of decayed vegetable soil; and may be propagated by means of cuttings planted in sandy soil during the early part of the summer, or by seeds. These plants flower through the summer.

ACACIA.—A very numerous family, of which the majority are greenhouse plants, but some require a stove temperature.

A. armata is a very beautiful evergreen shrub, covered in the blooming season with little balls of yellow threads. *A. pulchella* is another equally handsome, but has branched bunches of the little yellow balls of threads. *A. oxycedrus* has sharp spiny phyllodia (leaves), and flowers like a bottle brush. Both stove and greenhouse species require the same treatment, except as to temperature. The soil in which they all thrive best is half loam and half turfy peat; they require plenty of air, and according to their habit must either be supported or not. Cuttings of last year's growth will strike very freely; to prepare them, cut the lower end close up to a joint; cut off any leaf or leaves that are on the lower inch of stem which may be inserted into the soil, allowing another inch to be above the soil; the cuttings may be placed pretty close together, and a glass covered over them. If you have a propagating house, or a moderate hot-bed where you can give them a little bottom heat, it will hasten their striking, but they will strike in a cold frame or in the greenhouse; they must be shaded with a paper from the heat of the sun; when they have struck root, pot them into sixty-sized pots (three inches across the top), with good drainage and soil, as already mentioned. As they advance, check any shoots that are growing too vigorously, by pinching off the tops. When these first pots fill with roots, change to a larger size, and continue to change as fast as they fill their present ones. Most of them bloom in May and June, and nearly all bear yellow heads of thread-like flowers, some round, some oblong, succeeded by a pea-shaped pod.—See *Horticultural Magazine*, Part 46.

ACANTHUS (Bear's breech).—A genus of hardy herbaceous plants, somewhat coarse, but of stately appearance; they bloom in July or August, in a tall spike, the blooms being white and purplish, and protected by spiny bracts. They grow in any kind of soil; and propagate most readily by division of the root. *A. spinosissimus* has beautifully divided leaves.

ADONIS (Pheasant's eye).—One species, *A. autumnalis*, is an old annual with finely cut leaves almost like southernwood, and a small scarlet poppy-like bloom, and is sold at the shops under the name of *Flos adonis*. It may be sowed in pots in February, a few in a small three-inch pot, and be kept under glass until May, when, if potted in larger pots for blooming, or planted out with their ball of earth entire in the common borders, they will flower directly, and if sown in patches

in the open border or in beds about April, and allowed to take its chance, it will flower the same as any of the so-called hardy annuals. It requires no heat nor protection if sown in the spring as other annuals are, and therefore is no more entitled to be called half hardy than the common nasturtium, which is called hardy, but which will no more bear frost than a geranium. The fault of the Flos adonis as a garden plant is, that the bloom is scanty; and the anemone is worth a hundred of it, even if there were only one colour; but the anemone having a hundred shades and colours, is far before it; besides which, being a perennial, it is not half the trouble. *A. vernalis* is a pretty yellow-flowered perennial blooming in March. There are several other species, but they all grow in common soil.

AGERATUM.—The *Ageratum mexicanum*, and *odoratum*, are favourite annuals growing a foot and a half high, and bearing blue composite flowers in June, July, and August. They only require sowing in the open air where they are to bloom, and to be thinned to give them room after they come up, for it is not well to remove them. They should be sown in April with the rest of the annuals, for, although in mild springs the annuals may be sown in March, there is a chance of all the tender ones being nipped in the latter end of April or the beginning of May by the spring frosts, which are very severe, because such a change from the general weather. In beds they should not be nearer than six inches apart.

CAMELLIA.—The *Camellia japonica*, or Japan rose, is one of the most beautiful of all evergreens, and the most beautiful object in the greenhouse or conservatory; the leaves broad and showy, generally close enough to be rich, and of pretty shrubby habit; the flowers more uniform and symmetrical than the rose; colours various, white and striped, smooth and fimbriated, pale and dark rose, pink, crimson, blood colour, and pale blush. There are some imported varieties, but they are mostly from seed, the catalogues containing some hundreds of names, the greater portion by comparison worthless, but of themselves very noble and beautiful shrubs. In fact, the worst and most common would be esteemed a splendid sort were there no better. The Camellias propagate freely by cuttings, but as the single flowering kinds grow most freely, they are propagated for stocks, and the fine varieties are multiplied by grafting, budding, and inarching. Cuttings should be taken of the last

year's wood, about three inches long, cut up to a joint, the lower leaves removed, and struck in pots with slight bottom heat; these are potted into the smallest sizes (sixties) and kept in a frame well secured from frost. As the first pots fill with roots, put them into the next size (forty-eights) and grow them on till wanted as stocks. The better sort of plants should be kept in very light pits; they are the better for growing without artificial heat, but the frost must be carefully excluded. When they have done flowering, they should be kept out of the wind while they make their growth, for a wind checks the young growing shoots. They may be grown in the greenhouse or in pits properly protected, or in a canvass house, which is better than either, until they have made their growth, when a sheltered situation, free alike from sun and covering, and with plenty of air, will suit them best. At the beginning of September they must be placed in winter quarters. At all times they like plenty of air, and wind will not hurt them except while growing, when it is apt to dry up the juices in the young leaves, and cause them to curl and become stunted, and so spoil all the beauty of the new growth. Grafting, budding, and inarching should be done just before the buds start on the sort to be multiplied, and just as the stock begins its growth. There are many beautiful seedling varieties reared in England, and some of these far surpass all the imported varieties. The soil in which the Camellia best thrives is two-thirds loam, one-sixth turfy peat, and one-sixth decomposed dung; these should lie together some time and be well mixed. They are raised from seed easily. The seeds may be put in an inch apart all over a wide-mouthed pot, and be placed in the greenhouse or propagating house, and have only to be kept clean of weeds and watered occasionally, until they grow large enough to put out in single pots. When they have advanced one season, and the first year's wood is ripened, you may hasten the bloom very much by inarching the top upon a good strong stock, but this is only done with such as indicate a new variety. The others may grow until they flower. (See *Horticultural Magazine*, Part 38.) The *Camellia reticulata* is a showy though a loose red-flowered species; and one small-growing neat-looking species with light rose-coloured flowers, is called *C. Sasanqua plena*.

EPACRIS.—This very beautiful family, of which the best species or varieties are *E. grandiflora*, *miniata*, *impressa*, *nivalis*, and *campanulata*, is an important tribe of greenhouse

plants, and, under proper treatment, can hardly be excelled. Their flowers are tubes, the first crimson tipped with white, the second vermilion and white, the third pink, and the fourth and fifth, white. They are spoiled in many collections by the rage for rapid growth, and the consequent unnatural appearance of the plants. They may be grown in two-thirds turfy peat, and one-third good loam. They must have as much air as can possibly be given, and every pains should be taken to prevent their drawing up lanky. As, however, the plants are inclined to shoot upwards at great length, it is well to check them before they are four inches high; by taking the ends of the cuttings before they have grown far, the laterals will be encouraged, and the plants grow bushy, but they must not be grown fast. A pit, or even a common garden-frame and light, would be better than a greenhouse, if the frost could be kept out; for the nearer the plants are to the glass, the less they will be inclined to draw. Wherever one or more of the shoots take a vigorous turn, and grow faster than the rest, check the growth by pinching out the end, so that lateral branches will still be encouraged, in preference to the elongation of the main shoots. Slow growth is peculiarly desirable to these plants, for the nearer the leaves are to each other, the handsomer the specimen; and rapid growth is always against this, because the stalks lengthen too much, and the leaves are farther apart in consequence. The flowers of the Epacris always come at the base of the leaves, and therefore are closer in proportion as the foliage is compact. Cuttings are stuck in sand, on the ordinary compost; the leaves taken off the bottom half-inch that the cutting may be the easier thrust into the sand, which should be half an inch thick on the compost that the plants grow in, so that the bottom of the cutting may touch the soil, but not enter it. A bell-glass over this, and occasional watering without disturbing the cuttings, will soon make them root. A slight bottom heat will hasten the striking, but it is not necessary. When the cuttings have struck, put them into the smallest-sized pots, one in each pot; and having watered them, to settle the earth about their roots, let them be placed in the greenhouse, or pit, to grow as we have directed. Examine daily to see which requires water, and do not give to all because one has become dry: there are some plants take up water faster than others, and it will not do to give any too much. Seed may be sown in the spring, in the compost the plants

grow in, and slightly covered; let them be raised in the greenhouse near the light, but shaded from the sun. When they are large enough, prick them out three or four in a small pot; and when they have become crowded, put them one in a pot, to be treated as we have already directed for cuttings, for they are then about the same as rooted cuttings.

APHELEXIS.—A genus of most elegant dwarf greenhouse shrubs of singular habit; the leaves, which are small and somewhat woolly, are close pressed to the stems, which thus appear to be covered with long scales instead of leaves. At the ends of all the most vigorous shoots, appear the flowers, which are richly coloured, and of the texture known as "everlasting." *A. humilis, sesamoides,* and a more richly coloured variety, called sometimes *purpurea grandiflora,* are the best kinds; the flowers vary between pink and crimson, deepest on the outside. They require the same treatment as the species of *Elichrysum,* in which genus they were formerly included.

APICRA.—One of the genera divided from *Aloe.* The species are small, but very interesting succulent plants, and take up but little room. They are increased by planting the lateral shoots as cuttings, in sandy soil, very moderately supplied with water until they have rooted. They should have a compost of sandy loam and pounded brick rubbish, the pots being drained to one-third of their depth, by broken potsherds. As they grow, the pots may be changed for larger ones; but being only small-growing plants, they never require very large pots; and it is preferable to raise young ones, instead of keeping large masses of the older plants.

APONOGETON.—A genus of curious and elegant waterplants, all perennials; one or two species requiring stove temperature, and two others formerly kept in a greenhouse. *A. distachyon,* with white flowers, however, is found to be hardy. They should be potted in peat and loam, and the pots sunk a few inches under water in a tank; or if kept in the house, the pots may be set into a tub. They are propagated by seeds, which should be sown in the same kind of soil, and the pots set just under water; they also increase by offsets.

AQUILEGIA (Columbine).—The common columbine, *A. vulgaris,* is one of the most elegant of perennials, perfectly hardy, with a foliage peculiarly handsome, and of a blue-green colour. The flowers are borne on elegant branching stems,

and the best and most durable of them are extremely beautiful, reminding one of a woman's drawn-bonnet. The colours dark and light blue and striped, dark and light pink and striped, and deserve a place in every garden, however limited for room. They seed freely, and are easily raised from seed, and the plant may remain in the same place two or three years; but propagate easily by parting the roots; so that when we have raised a good variety from seed, the sort can be multiplied. The seed may be sown on the common soil of the garden, as thinly as it can be spread. We recommend a bed four feet wide, and as long as need be for the quantity intended to be grown: this width is convenient for weeding by hand. When up, and strong enough to remove, let them be planted out, nine inches apart every way, in beds four feet wide; this will take five to cross the bed. If they are to bloom on the bed, we would have them nine inches apart on the cross row, but eighteen inches from row to row. When they bloom, pull out all the single and ugly ones and throw away; the better ones may remain to be marked or labelled, and if desirable propagated; they are very well worth the attention of florists in general. All the other species of Columbine are handsome plants, and some remarkably so. Among the most striking, are—*A. Skinneri* and *A. canadensis*, whose blossoms are red and orange; and *A. glandulosa* and *A. jucunda*, the flowers of which show a mixture of white and blue. They are all grown and propagated in a similar way.

ARABIS (Wall-cress).—Very dwarf and mostly simple-looking plants, producing, however, a profusion of their cruciferous flowers, the predominating colour among which is white. The species are numerous, all hardy; the majority evergreen, and all particularly adapted for rockwork. They grow readily in any light common soil, and propagate most readily by cuttings. Some of the most interesting species are *A. albida, alpina, lucida*, and *præcox*, which have white flowers, blooming in May and June; and *A. rosea*, of which the flowers are red.

ARALIA.—Of this genus, which bears fine compound leaves, there are several hardy species, some of which, as *A. hispida, japonica*, and *spinosa*, are deciduous shrubs; and *A. nudicaulis, macrophylla*, and *racemosa*, tall-growing, herbaceous perennials. The shrubby kinds grow up with erect stems, and the leaves are comparatively large, and very compound; the herbaceous

kinds have the same characters, but are smaller. They all grow very readily in common soil, and are propagated by cuttings of the matured stems, planted in sandy soil under hand-glasses.

ARAUCARIA.—Noble evergreen trees, highly ornamental in their aspect. *A. imbricata*, the Chili pine, is quite hardy, and a valuable addition to ornamental plantations. A more beautiful kind, the Norfolk Island pine, *A. excelsa*, is tender, requiring the protection of a greenhouse. They grow to a large size eventually. A good loamy soil is proper for them. Although they may be propagated by cuttings, yet seedlings only make handsome plants.—See *Horticultural Magazine*, Part 36.

ÆSCHYNANTHUS (Blush-wort).—This is now, by recent additions, become one of the most ornamental of the genera of dwarf stove shrubby plants. They require a damp hot atmosphere, and very light, open, or turfy soil, of a peaty nature. If grown in pots, these must be thoroughly drained with potsherds ; but they grow exceedingly well, especially all the smaller-habited kinds, if planted in rustic baskets made of rods an inch or so in diameter, these being filled with turfy peat soil, and suspended from the roof of the hothouse. All the species are epiphytal in their natural state ; in other words, they all grow *on* the branches of the trees of tropical forests, and not in the ground. The most ornamental kinds are—*Æ. Lobbianus, pulcher, miniatus, longiflorus*, with rich deep scarlet blossoms ; and *Æ. grandiflorus* and *speciosus*, with the flowers rich orange-coloured. The flowers are produced abundantly, and are of a curved tubular form. They all propagate readily by cuttings.—See *Horticultural Magazine*, Part 27.

ÆTHIONEMA.—Pretty little plants, adapted for rock-work. They grow in common soil, and propagate freely by cuttings or by seed. *Æ. membranaceum* is a pretty perennial and bears lilac flowers ; some are annuals ; all are hardy.

AGAPANTHUS (African lily).—Perhaps few plants are more neglected than this very handsome lily ; that is, because it happens to be capable of living and flowering with very ill usage, it rarely fails to be ill used. It has long flat leaves ; throws up a flower-stem two feet high, and bearing a large bunch of splendid blue liliaceous flowers, forming a round head of bloom, very conspicuous and very elegant. It is, strictly

speaking, a frame plant, though we have known it to live through hard winters without protection. It is grown in pots. The root is tuberous, and it is propagated by separating the young suckers, that in time fill the pot and starve the old plant; the suckers themselves in time become fit to bloom. Hence we see this plant in all places nearly, or quite, pot-bound; in consequence of which, the flowers are smaller and not so brilliant. Suppose we begin with a sucker. It should be placed in a pot large enough to take all the roots without cramping, in a soil composed of loam one-half, peat one-quarter, decomposed dung or leaf-mould one-quarter, well mixed; as soon as it has filled the pot, change it to a larger, and the instant a sucker appears take it off, without allowing it to divide the nourishment with the mother plant. Keep it in a frame, giving it all the air you can, but no cold winds and heavy rains; genial showers will not injure it. You will observe a great disposition to throw up suckers, but let them be broken off as soon as they form. Continue changing the pots. With this treatment, the flower-stem thrown up will be strong, the flowers large; and the plant thus grown, forms one of the most noble objects in the garden, or conservatory, in the month of August. *A. umbellatus*, which has blue flowers, and its varieties, *albidus* (white), and *variegatus*, are well worth places in the most choice collections, and the finest conservatories; for, however common they may be, and however neglected they may have been, they are all that can be wished of a flowering plant. *A. minor* and *A. præcox* are the only other species; but as they are all from the Cape of Good Hope, and merely differ as to the time of flowering, they are just as likely to be sold and grown for one another, as not. However, they are all worthy of cultivation, and therefore no one can be disappointed. We have had them without knowing one from the other; but the most common, and one that is every way desirable, though so much neglected, is the one blooming in August. They are raised from seed, by sowing it as soon as it ripens, and starting it in a hot-bed, and when well up removing it to the warm part of a greenhouse; then the seedlings, when grown enough, may be pricked out into small pots an inch apart, and grown till they are large enough to have pots to themselves, when they may be treated as young offsets of old plants.—See *Horticultural Magazine*, Part 38.

PETUNIA.—A genus of showy, soft-stemmed, shrubby

perennials, closely allied to *Nierembergia*. One small-growing species, *P. intermedia*, is a beautiful, but very delicate subject but except so far as this may render more care necessary, its culture is not different from the others, from which, however, this plant is perfectly distinct. The garden race of petunias has sprung from *P. nyctaginiflora*, and *P. violacea;* the former has white, and the latter purple blossoms. *P. violacea*, in its original form, is one of the richest of all plants for bedding out in the flower-garden, owing to its colour. There are, however, few families in which there has been such a revolution as the cultivators have made in this; from the thin flimsy flowers of the old white, and the conspicuously-pointed and divided blossoms of the old form, we have produced some very round flowers, with very thick corollas, and given a great zest to the cultivation of the flower by means of the beautiful colours that have been raised. The names of florists' flowers are arbitrary; there are hundreds that differ only in colour and form, and yet many differ infinitely more than some of the so-called species. They strike freely from cuttings, with bottom heat under a bell-glass; they seed freely in the open air; and being tender, the cuttings should be planted out after they are well rooted; and if they are any object, potted up again at the end of the summer; but as they are always better from cuttings, plants should be struck at the end of the summer to keep over for planting out in spring.

PLUMBAGO (Lead-wort).—A pretty family, with flowers somewhat the form of those of the Phlox. The majority are shrubs; some few, however, are sub-shrubby, among which is *P. Larpentæ*, which is nearly or quite hardy, of dwarf and compact habit, and has flowers of the richest blue, defective, however, in being of flimsy texture incapable of bearing either wind or sun. *P. capensis* is a very desirable greenhouse shrub, with flowers of a greyish blue. It has been for the most part grown too fast, and is therefore, generally speaking, a rambling plant. Two-thirds loam, and one-third peat, is a soil that will suit them better than a richer: for the object should be to keep the plant dwarf and bushy; it is sure to grow long enough after all the pains that can be taken is bestowed on it. The cuttings may be struck in ordinary soil with or without bottom heat, by simply being cut up to a joint, and the lower leaves being taken off an inch up; and after inserting them and watering them in, covering them with a bell-glass. When the cuttings

are struck, pot them singly in the small three-inch pots with the compost we have mentioned, and as soon as they fairly start into growth, take off the tops to encourage the lateral shoots; and as they fill their small pots with the roots, remove them to larger ones: they will grow well in a stove, but they grow too fast. By continual checks where any of the branches want to ramble out of form, the plant can be grown and shown a very pretty object. Two of the stove species, *P. rosea*, with rosy-pink blossoms, and *P. zeylanica* in which the flowers are white, are desirable stove shrubs; they require the same kind of treatment as *P. capensis*, except as to temperature.

GENTIANA (Gentian). — Hardy herbaceous plants, of which the species are handsome. *G. acaulis*, sometimes called Gentianella, has been chosen on many occasions for the edges of flower-beds and borders. A dry, light, but not a poor soil is required, and when once planted, it does not like to be disturbed; consequently, edgings are allowed to grow pretty wide, and it is then that it begins to bloom profusely. Many complain that the plant will not flower with them, nor will it with anybody till it has fairly settled down into its place and begun to grow well. The border should be prepared for the plants by forking in some peat along all the length of the edging; or if to be grown in patches, merely mixed with the earth where they are to be planted; they may then be planted, and watered in to settle the earth about their roots. The brilliant blue of their bell-like flowers, which, however, are turned up instead of hanging down as most bell flowers do, is so intense, that they form a most striking object anywhere; but as an edging, they present while in bloom a most conspicuous line of blue; the whole plant when in flower is not four inches high, yet the blossom is almost as long as that of a Canterbury bell, and only something smaller in the throat. It is an evergreen, and when not in flower, is by no means a bad edging. A somewhat smaller but equally brilliant species is the *G. verna*, of which there is a white variety. Several of the other species are most beautiful border flowers, growing from one to two feet high. Among these, *G. asclepiadea, Catesbœa, cruciata, glacialis, pneumonanthe, saponaria, septemfida*, have blue flowers; *G. algida, frigida*, and a variety of *asclepiadea*, and of *saponaria*, have the flowers white. These all grow in good rich soil, and most of them prefer a considerable proportion of peat earth; they propagate readily by division of the plant.

AMYGDALUS (Almond).—The common Almond, *Amygdalus communis*, and its varieties, are showy small flowering trees, bearing pink blossoms about March ; *Amygdalus nana*, the dwarf almond, is a very pretty flowering shrub, with similar blossoms. The double-flowered varieties are particularly beautiful, the colour of their blooms being a richer and deeper pink. They all grow freely enough in good loamy, well-drained garden soil. Increase is effected by budding, or by transplanting the suckers.

ANAGALLIS (Pimpernel).—A pretty family of greenhouse and hardy plants, annuals, perennials, and biennials. *A. arvensis, carnea,* and *indica,* are hardy annuals which may be sown in the open ground. *A. Monelli* and *Philipsi* are greenhouse perennials, of which the varieties are numerous ; these are as often raised from seed, as from cuttings. *A. Marryattæ, Webbiana,* and *Wellsiana,* are frame perennials of trailing habit. The annuals are flesh colour, red, and blue ; these should be sown where they are to flower, or in pots to plant out, and bloom in July and August ; if sown earlier, in heat, they will flower in May and June. The perennials may be raised from cuttings, under a common hand-glass, and when potted off, should be grown in three parts loam and one part peat, and they may be changed from small pots to larger as they fill up. *A. latifolia* and *linifolia* are tender biennials, one purple, the other blue, but the seedling varieties are becoming very numerous, comprising many different shades of colour ; they turn out well for beds and borders.

ANASTATICA.—One species, the *A. hierochuntina,* is called the Rose of Jericho. It possesses no beauty, the flowers being small, white, of the cruciferous form ; but it has the singular property of curling up into a ball in the dry season, becoming detached, and drifting over the sandy plains, unfolding again (not, however, in a living state, for the plant is an annual,) when moistened by rain. It has hence been called the Everlasting Rose. It grows freely from seeds in any soil, but should have a little shelter.

CYCLAMEN (Sowbread).—This is a beautiful genus, scarcely second to anything as respects the qualities of a flower. The *Cyclamen persicum* has a beautiful fragrance, and from seed there have been raised some very pretty varieties of that species. It has a tuberous root, from which proceeds a bushy plant, composed of the handsome leaves on their single stalks, and the flowers

rise up in the same manner; the foliage forms a handsome bushy plant, not three inches from the pot; the flowers all rise completely above the leaves, and are almost of the form of a shuttlecock, the wings reflexing completely, and pointing upwards, while the flowers point to the earth. The bloom is profuse; the colour is white, with a violet shade, in the original, but in some of the varieties the whole is a beautiful rosy pink or crimson, but all highly scented. The greenhouse, near the light, is their proper habitation. The tubers may be potted in light soil, in the autumn, and they flower very early in the spring. *Cyclamen repandum, Coum,* and *europœum,* are all great favourites; but, to our mind, not equal to *C. persicum* and its varieties. The plant seeds freely; and to raise any quantity, they should be had from seed, because they do not give offsets very freely. Sow the seed in the autumn, in pans, in soil composed of loam, dung, and peat, equal quantities. Sow them thinly, so that they may not come up too close to each other. Let the pan stand in the greenhouse, near the glass. Water occasionally, and when they come up, keep them clear of weeds. They must be kept growing, and have water now and then, to prevent their flagging. In the spring they will be forward; and when they have made their full growth, they will have formed little tubers, which at the decay of the leaf should be taken up and put into forty-eight-sized pots, four or six in a pot. Here they must be placed near the glass again, and have one more season's growth, carefully watered. When the leaf decays again, they may be taken up, and planted one only in a pot; size sixty will do for them. The tuber must not be placed under the surface; the upper part of it must be exposed. They will flower this third season, and from that time they need not be removed from their pots, except into larger ones, and then the balls must be kept whole, that they may be as little disturbed as possible. As the pots fill with their roots, put them into larger ones; they will flower more abundantly every year.

SYRINGA (Lilac).—This family comprises the lilac and its varieties. The well-known shrub, the foliage of which smells so strongly like cucumbers, with flowers like orange flowers, popularly known as Syringa, is botanically called *Philadelphus.* Of the lilac there are several very distinct kinds. The common lilac, *S. vulgaris,* gives some varieties, as the white, the red, the purple. Of the Persian lilac, *S. persica,*

there is also a white, as well as a cut-leaved variety. There are some others, as *S. Josikæa*, and the Chinese *S. rothomagensis*, which is perhaps the best of all. They chiefly differ in the size of the foliage and flower ; all are hardy, and well deserving a place in all shrubberies. They are propagated by layers and suckers, the latter of which abound so much as to become troublesome unless regularly removed, with the bit of root to which they are attached. All these species grow as a bush, but they are in every respect more desirable as standards. To make them grow as standards, the buds of the suckers when planted out, with only single stems to grow, are all rubbed off but two or three placed at and near the top ; and as the top advances in height, the under branches are cut clean away, so that at no one time shall there be more than the few top branches. When the single stem with its top three pair of branches has reached the height you wish it, say six feet or less, let the branches remain on and grow ; but when the leaves are all off, nip out the top, to prevent the tree growing higher, and pinch out the ends of the branches, to encourage lateral shoots, which will soon form a very handsome head, when these have come to something like what is required. Destroy suckers the instant they appear, as the stem ought to be clean to the bottom ; rub off all buds that push out anywhere about the stem, and the lilac tree may then be planted among evergreen shrubs, to completely hide the stem, which will take up scarcely any room. There is no art in growing the bushes, for the suckers have only to be cut down to the lower four or six eyes, and there will be a bush the first season.

ERYTHRONIUM (Dog's-tooth violet).—A genus of pretty, hardy, dwarf, spring-flowering, herbaceous perennials, with tuberous roots. The common sort, *E. Dens-canis*, has the leaves, which are of a blue-green, conspicuously spotted with brown ; the flowers are of a reddish lilac, the segments reflexed a good deal, as in the Cyclamen. *E. albidum* has white, and *E. grandiflorum* yellow blossoms. These all grow in any good garden soil. *E. americanum*, a handsome kind, which bears yellow flowers, will not thrive unless planted in a bed where there is a good proportion of peat earth. They all increase readily by means of offsets.

DODECATHEON (American cowslip).—Very pretty, early-flowering, dwarf perennial herbaceous plants, quite hardy, but preferring to be planted in a soil where there is a good propor-

tion of loam and peat earth, and requiring a cool situation. The flowers are in shape like a half-opened parasol. The common kind, *D. Meadia*, of which some varieties are grown, has light purple flowers, as has also another allied species, called *D. integrifolium*. They are increased without difficulty, by dividing the roots; seeds are also produced, from which young plants may be raised by the same process as in raising seedlings of auricula; except that, when large enough, these may be planted out in the open ground.

NARCISSUS.—This very familiar tribe of bulbous-rooted plants is very extended, comprising, perhaps, a hundred and fifty species or varieties; but the principal good ones are imported annually in great numbers, like the hyacinth and early tulips. These bulbs are forced in pots, bloomed in water, and planted in borders. The most handsome are the varieties of *N. Tazetta*, and one or two other kinds, known as polyanthus narcissus, a class so named in common because they throw up their flowers in large trusses, while many only have one bloom to a stem. They require, in every respect, the same treatment as the hyacinth. They may be grown in any rich, light soil; if bloomed in glasses they want a change of water once a-week, and when put out in the borders, they should be in patches of three, put in pretty close to each other, forming a triangle, with one in front and two behind. They require no protection except in very severe weather; they will bear a good deal of frost without injury. The plant comes with grassy or leek-like leaves; the flower stem comes up in the centre, with a sheath at the top, and from this, which bursts on one side, the bunch of flowers, yellow, orange colour, white, or mixed white and yellow, protrudes, and forms a pretty bunch of showy bloom. The Jonquil is a species of narcissus, *N. Jonquilla;* they are smaller, and some of them sweet scented. (See *Horticultural Magazine*, Part 29.) These, as well as the narcissus, comprise double as well as single flowers. There is considerable variety among the other species of narcissus; and a selection from the many known kinds forms a very interesting series of plants.

VIBURNUM.—This is a genus of hardy plants, including, of popular plants, the laurustinus and the Gueldres rose. For the former, see the head Laurustinus. The Gueldres rose, *V. Opulus*, is very familiar in most parts of England: the bloom is white, in bunches that form complete balls, and, from their

abundance, are very effective. The propagation is generally from suckers, which come up, like those of the lilac, very freely. These should be taken up at the fall of the leaf, or between that and the time the buds begin to swell, and be planted out in nursery beds. As they are generally grown into bushes, the suckers should be cut down to three or four inches high, and be placed in rows, about eighteen inches from plant to plant, and two feet between the rows. As they make their first growth, care should be taken that they do not grow out of form. If any shoots are too vigorous, or are growing awkwardly, take off the ends, to keep them within bounds and make it better for the rest of the shrub. If you design to make any of them into standards, pick out from the suckers the most straight, tall, and handsome, and plant them by themselves; when these begin to start, rub off the buds all over the stem, except the three or four nearest the top. The leader will shoot up a good deal faster for preventing the side shoots from robbing it of nourishment. As the leader pushes up, more side branches will come, and the bottom branches may be cut off close, so long as three or four shoots can be left. When it is tall enough, the top may be pinched out, to encourage side growth, but not down the stem, where the buds must always be rubbed off as soon as they come. There is a great variety of species, but none are so handsome as the Gueldres rose, except its evergreen congener, the laurustinus.

LAURUSTINUS (*Viburnum Tinus*).—One of the best of cultivated garden shrubs, being evergreen, free-growing, free-blooming, of handsome appearance at all times, and flowering in winter. It is open to but one objection, and that is, that it is sometimes injured by severe frosts. The laurustinus is generally seen as a dwarf, bushy, evergreen shrub. They are mostly raised from cuttings, though sometimes from layers. The cuttings are taken in autumn, and planted in sandy soil, in a north border, or what is safer, they are planted in deep seed-pans, which are plunged where they can be readily sheltered in case of very severe weather. They become well rooted during the next summer, and by the following spring may be planted out, in rows eighteen inches apart, by six or eight inches in the row. From this position they may be removed, after twelve months' growth, to where they are to remain. They require no particular soil.

FRITILLARIA (Fritillary).—This is a genus of hardy

bulbous plants, mostly flowering during the latter part of the spring. The bulbs should be planted in sandy, loamy soil, and when taken up for transplanting, it should be about August. Like the bulbs of lilies, the roots of these plants do not bear exposure for any considerable time; they are, in fact, best replanted immediately on taking them up. All the species propagate by offsets, and grow freely in the open ground, without protection. The most stately species is the Crown-imperial, *F. imperialis*, which grows two feet and a half high, and bears a whorl of drooping flowers, surmounted by a tuft or crown of leaves; the flowers are either yellow or red. *F. alba* and *præcox* have white flowers; *F. meleagris* and *ruthenica*, purple; but these mostly have one drooping, cup-shaped flower, from the top of each stem, and are much smaller and dwarfer plants than the Crown-imperial.

VINCA (Periwinkle).—Pretty, small, hardy, shrubby plants, nearly woody in texture, and always dwarf and evergreen. There are three kinds; the largest, *V. major*, grows a foot and a half high, and has large purple flowers; *V. minor* is a much smaller plant, and of this there are varieties, both with white and blue flowers; *V. herbacea* is a still dwarfer, extensively trailing plant, with purple flowers. They are all of trailing habit, and are well adapted for covering the surface of the ground in shady situations where little else will live. They are increased at pleasure, by separating the rooted trailing shoots.

BELLIS (Daisy).—The manner in which some of this family grow wild, in pastures, by the roadside, on banks, and in almost every piece of waste land, impresses one with an idea that it needs little culture. Of the garden varieties there may be a dozen; but the most striking are the double white, double crimson, double striped, and a curious sort vulgarly called the Hen and Chicken daisy, from the fact of small flower heads coming all round the large ones. The culture is simple enough: they are multiplied by parting the roots into as many pieces as have hearts of plants to them, and these single hearts will, in a season or two, multiply themselves again by spreading offsets all around them, and becoming, if neglected, a large patch of plants, capable of separation. They are often used as edgings to beds; and, next to box, perhaps they form the best, because they can be kept to a moderate width by merely cutting, as the edging of turf might be cut. They are showy

in the borders, blooming in May and June; and from the number of flowers they bear, and the regularity of their succession, they are as long in perfection as most flowers, and quite worthy of a place in the best flower borders.

BELLIUM.—A genus of pretty, but minute, herbaceous perennials, suitable for pot culture, or for growing on rockwork. The flowers are white, resembling the daisy. *B. minutum* and *bellidioides* are quite hardy; *B. crassifolium* requires shelter. They do best in sandy peat; and are increased by the process of division.

BENTHAMIA.—*B. fragifera* is a hardy evergreen shrub, in the warmer parts of England, and, under these circumstances, is a very desirable plant. In the climate of London it can only be grown successfully against a wall, for which, however, its yellowish flowers, and reddish, strawberry-like fruit, renders it suitable. It grows in any good loamy soil, and is propagated either by layers or from the seeds.

BERBERIS (Berberry).—This is a very pretty tribe of flowering shrubs. The common berberry, *B. vulgaris*, bears its yellow blooms in racemes, followed by the brilliant scarlet or coral fruit so esteemed in preserves and tarts. The shrub is deciduous, grows well in almost any soil, and besides being bushy in itself, throws up suckers from its roots, like a thicket. If the beauty of the shrub is to be preserved, these suckers should be removed as fast as they come up; and if taken off properly, with a portion of root to them, they form young plants. It strikes readily from cuttings; and although there is not a shrub more decidedly shrubby, it can be formed into a pretty standard. Young suckers may be supported with stakes until they run up to the height required, all their side shoots being removed before they advance much in growth; the top may then be taken off, and a few of the lateral branches encouraged close to the top. These shortened before they grow much, cause other laterals to grow, and a good head may be formed in a short time. Although this berberry blooms and bears small, it will grow to ten or fifteen feet in height. There are many other hardy species of *Berberis*, from which may be selected, as possessing the greatest beauty or interest, the following:—*B. dulcis*, and *empetrifolia*, small deciduous shrubs; *B. dealbata* and *trifoliata*, evergreen shrubs. One section of berberries have been, by some, called *Mahonias*, though the separation is not generally admitted.

MAHONIA.—These are beautiful dwarf evergreen shrubs, with bright, holly-like, shiny foliage, growing thick and rich, and bearing beautiful close bunches of bright yellow flowers in the spring, succeeded by rich purple fruit. There is hardly a prettier set of evergreens in cultivation; they afford a very striking variety in the foliage of a mixed clump; but as the plants feather down to the ground, there should be nothing to hide them; on this account they make an excellent lawn plant, to stand alone. They bear round, bright, purple fruit, which looks as pretty as the flowers; and the plants, which do not grow higher than three or four feet in general, and are a good while reaching that height, are handsome without either flowers or fruit. They are multiplied by suckers, which may be taken off in the autumn; they also strike freely, and may therefore be raised from cuttings, but of late they have been chiefly raised from seeds, which yield a much greater variety of foliage than the several enumerated sorts exhibit. The seed should be washed out of the soft berries and dried; then a bed, with a portion of turfy peat dug among the ordinary soil, should be prepared, and the seed sown very thinly indeed upon it, and raked in. When it comes up, let it be cleared of weeds, and, in very dry weather, occasionally watered. They may remain until large enough to plant out a foot apart; for if they have not room, they soon draw up ugly. Here they have only to be kept clean till they are large enough to plant where they are to stand. The most common of these holly-like sorts is the *B. Aquifolium*, but *B. glumacea*, and *repens*, are not rare: they are all equally handsome. *B. fascicularis*, and some others, are less hardy. A new species, with very long, narrow leaflets, *B. Fortuni*, promises to be hardy; its foliage is distinct.

CERASUS.—Besides the interest which attaches to this genus, as that to which the cherry-tree belongs, it claims notice as comprising early-flowering trees and favourite evergreen shrubs. The Bird-cherry, *C. padus*, is a free growing, deciduous, small tree, which, in the spring season, is generally covered with long drooping racemes of white blossoms; in this quality of early flowering, the bird-cherry is a near associate with the almond. Here rank both the common and the Portuguese laurels, so called: the former, *C. laurocerasus*, the latter, *C. lusitanicus*; both favourite evergreen shrubs. The common laurel is well known as one of the best of all evergreens; and in early spring this too, when it attains size and age, is fur-

nished with long spikes of white blossoms, of which bees are fond. The Portuguese laurel, besides its ordinary use in shrubberies, is sometimes trained up formally, with a straight bare stem, and a thick round head of branches like the orange-tree, which it pretty well resembles ; in this state it may be made to impart to small formal garden plots that exotic effect which in princely gardens is obtained by the use of orange-trees, and it becomes a substitute for these in winter. All these are free-growing plants in good garden soil ; and are all propagated by layers and by seeds. To obtain the formal, tree-like Portuguese laurel, a young plant, with a straight leading stem, must be taken ; the side branches should be taken off, a few each year, and the leading stem encouraged by every means, till sufficient height be attained, when its top should be removed, to cause side branches to push out ; these side branches should be continually topped, while the growth is as constantly excited, until the size and form of head are perfect, when the plant will stand for years, with little care besides watering.

ADENANDRA.—Greenhouse shrubs, requiring to be grown in peat soil. *A. speciosa* is a very handsome evergreen shrub, the flowers of which are large, white, with a red stripe on each of the five petals. Increased by seeds, or cuttings.

ADENOCARPUS.—A free-growing genus, of yellow butterfly-flowered shrubs, nearly allied to *Cytisus*. There are both hardy and greenhouse species, all of which are very handsome, and bloom about June. They may all be grown in turfy loam, lightened by the addition of a third part rotted leaves, and some sand, if the loam is not of open texture. They may be increased by cuttings planted in sandy soil, under hand-glasses, or by layers, or by seeds.

CALAMPELIS.—*C. scabra*, formerly called *Eccremocarpus scaber*, is a handsome free-growing climber, rather rambly in habit, but well adapted to cover a considerable space out of doors in summer, or to intermix with other more close-growing species on a trellis. Its blossoms are tubular, orange-coloured, in loose panicles, and are very showy. It requires greenhouse protection in winter. A light loamy soil suits it ; and it propagates freely by its seeds.

CALANDRINIA.—A genus of very pretty herbaceous plants. *C. discolor*, and *C. grandiflora*, both with rose or purple-rose coloured blossoms, and growing a couple of feet high, are best grown as biennials. *C. speciosa* is very pretty

treated as an annual, and flowers best in a dry hot situation, with its branches trailing over stones; this has rose-coloured flowers, and needs only to be sown either in pots, to be planted out in May, or in the open border some time in April. The others, if sown about August, and kept over winter in the greenhouse, flower vigorously in the following summer. They all like a light rich soil of loam, peat, and leaf-mould. Seeds are the best means of propagation. *C. umbellata* is a neat-growing and showy dwarf perennial kind, requiring the protection of a frame; it grows best in a sandy soil. They all flower best in hot, dry, sunny situations; in fact, their blooms only expand to the sun, when their rich purple colour is very attractive.

BILLBERGIA.—The growth of this tribe of stove plants is something like the pine-apple, but the flowers are in spikes that come up from the heart of the plant, a little after the fashion of the small aloes. They propagate themselves by suckers, which will fill a pot, if left to themselves; but when a pot full is turned out, and the mould shaken out, the plants separate of themselves. They are also raised from seeds, which may be sown in a wide-mouthed pot or pan, and placed in the hothouse, or propagating house. When they are large enough, they may be pricked out half-a-dozen in a pot of five inches diameter, and continued in the same house; when they pretty well fill these, they may be potted singly in the same sized pots, and kept in the stove, shifted from one pot to another as fast as they fill with roots, until they are large enough to occupy a pot nine or ten inches in diameter. They may then be treated in all respects the same as pines until they bloom, when they may be removed to where they are to be seen, the conservatory, drawing-room, or hall of the mansion. They continue in flower a long time, and they will always flower the better if the offsets are taken away from the old plant as soon as they appear. The offsets are to be treated the same as seedlings, in every respect. They may be removed to the stove when the bloom declines, and they will most likely ripen some of their seeds. They will not all flower at one time; and, in a number of them, there will be nearly always some with flowers. The colours are various, most of the sorts having also two colours to the bloom; some are blue and red, others red and yellow. *B. amœna*, yellow, *B. fasciata*, blue and red, *B. iridifolia*, scarlet and yellow, and *B. pyramidalis*,

crimson, are among the most desirable; and they are none of them large-growing plants.

BLANDFORDIA.—Beautiful perennial herbs, requiring the shelter of a greenhouse. *B. nobilis* has orange-coloured tubular flowers, and narrow grassy foliage; in *B. grandiflora* the blossoms are crimson; they bloom in July, throwing up erect flower-spikes. These plants should have a compost of a very free open nature, consisting of sandy loam and peat earth; and they require large-sized pots to grow them to perfection. Increase is effected by dividing the suckers, as well as by seeds.

BLECHNUM.—Ferns; the hothouse and greenhouse kinds of pretty habit, and growing well in any turfy soil. The hardy species, *B. spicant*, bears barren and fertile fronds, and is a very elegant plant for out-door rockwork, preferring to grow where there is some degree of moisture and shade; it also prefers a peaty soil.—See *Moore's Handbook of British Ferns.*

BLETIA.—A genus of tuberous-rooted orchidaceous plants, whose stems die down after flowering. *B. verecunda*, which has purple flowers, and *B. hyacinthina*, whose flowers are of a rosy pink, though reckoned as stove plants, may be grown as frame plants; they both bloom in the early spring months, and require to be kept dormant and nearly dry through the winter; they are then benefited by removal to a somewhat warmer place in February, when they will be commencing to grow. They should have a mixture of turfy peat and light loam. Propagated by division.

BARTONIA.—A genus of plants not very extensive, but very pretty. *B. aurea*, which is the principal sort cultivated, is a hardy annual, growing two feet high, and flowering from July to September, with fine golden-yellow blooms. The other sorts are white, one of them an annual, the others biennials; the annuals have to be sown in a hot-bed, cooled down as soon as they are up, and planted out in the borders like China asters, or French marygolds, or bloomed singly in pots. *B. aurea* is rather a favourite annual, but too tall for the choice beds in geometrical gardens.

BATSCHIA.—A genus of hardy herbaceous perennials, dwarf, but of upright habit, and producing yellow blossoms. *B. canescens* is a very pretty subject, flowering in July, and growing a foot or more in height. They grow in good loamy garden soil, and may be increased either by seeds or by division.

BAUHINIA.—A family, consisting chiefly of stove evergreen climbers, and shrubs, blooming with white flowers, after Midsummer. *B. purpurea*, with a purple flower, *B. rufescens*, pale red, *B. racemosa*, pale pink, *B. inermis*, yellow and red, and *B. chinensis*, red, are the exceptions; the rest, to the number of more than fifty, are white. There are very few in general cultivation. There is some difficulty in procuring the seeds, but the plants soon get strong under good culture. They are not worth the trouble of raising.

BEAUFORTIA.—A genus of greenhouse evergreen shrubs, of the myrtaceous order, very splendid when in bloom. All the species have red or scarlet flowers. They require to be potted in a compost of peat soil and loam, lightened, if necessary, by the addition of sand. Cuttings may be planted in sand, and covered by a bell-glass; they root best in slight heat. *B. decussata* and *splendens* are very desirable plants, with scarlet blossoms produced about May.

BEAUMONTIA.—Noble flowering stove shrubs, especially *B. grandiflora*; the blossoms are white, like a long narrow funnel. They are stove-climbers, growing in a mixture of peat and loam, and increased by cuttings or seeds, which should be placed in a hot-bed.

GAILLARDIA.—A genus of hardy perennial herbs. *G. aristata*, with yellow flowers, is a showy plant, growing two feet high; *G. picta* is a soft shrubby-stemmed plant, free-growing, about a foot and a half high, and used for flower-garden decoration; its blossoms are yellow with a red centre. The latter requires the protection of a frame, and plants are raised from seeds or cuttings in autumn, to plant out the following May. The large species are of very easy culture in any common garden soil, increasing by division.

GALANTHUS (Snowdrop).—Well-known hardy bulbs, dwarf and very pretty, and general favourites, partly perhaps from the season at which they appear, as the heralds of spring. The common Snowdrop is *G. nivalis;* a large and handsome kind, also with white flowers, and in general features very similar, is called *G. plicata*. The bulbs only require planting in October, in the common soil, and should be left undisturbed for several years, as they then form thick patches, and are more showy when in flower. They ought to be planted in patches, instead of single rows along the edging of borders.

GARDENIA.—This is a most desirable family of ever-

green stove shrubs. One species, *G. radicans*, called by some Cape Jasmine, is abundantly grown in the nurseries round London, and produced in all the markets. It is a lovely evergreen shrub, from three inches to eighteen inches high, but it may be produced with bloom on it in the smallest sized pots, and in every stage of its growth it is a most pleasing object. It can be grown to perfection in a common hot-bed: take off cuttings that have no indication of bloom, at any part of the year, but when the plants are showing bloom, is the best time, simply because it is easy to find the shoots that have none, and these are the shoots to strike. Fill a pot with half loam, a fourth mould from rotted dung, and a fourth sandy peat, to within an inch of the top, which complete with sand; prepare the cuttings, about two inches long, taking the leaves off the lower part; stick these into the sand, which must be first saturated with water; sprinkle them a little afterwards over their foliage, and to settle the sand close to their stems; cover with a hand-glass, and give slight bottom heat. Wipe the glass dry every morning, and keep the sand moist. When they are rooted, prepare sixty-sized pots with the same kind of compost, put one-third of the height crocks, and the soil on the top; in these pots put the struck cuttings, water them, and place them in a common dung-bed, and near the glass; here continue to grow them till they fill the pot with roots, when they must be changed to forty-eight-sized pots, and returned to the bed, which will decline in heat below as the summer advances, but still preserve a moist heat, which is very congenial to the habits and requirements of this tribe. They must be covered from the violent heat of the sun. If there should be any sudden diminution of heat and unhealthy change in the bed, they are very likely to be attacked with the red spider, or some other pest; but if the heat be kept regular and moist, and the plants be not neglected, there will be healthy growth and pretty rapid progress. As the summer advances, they may have a good deal more air, particularly all the while the sun is out, but great attention must be paid to watering, a little neglect of which would be mischievous. As they advance, the pots must be continually changed; but as the winter approaches, other beds must be made, for the first will have declined; and here they must be removed in September. The plants will show their beautiful white double blooms in the spring; and as they begin to open, the plants

should be removed to the conservatory, greenhouse, or dwelling house, that their fragrance may be enjoyed. After the bloom is over, the plants may be put in the greenhouse for a rest, or, if the summer be advanced, in the open air; but as soon as they begin to grow, place them in the hot-bed again, for that is the best climate, and next to this the moist atmosphere of an orchideous house. All the varieties are pretty, but *G. radicans* and *G. florida* are the favourites.

GARDOQUIA.—A small family, comprising stove and greenhouse plants. *G. betonicoides* is a greenhouse herbaceous perennial, blooming in October; *G. discolor* is a stove evergreen shrub, flowering in June; both of them are purple. *G. Gilliesii* is a lilac, and *G. Hookerii* a scarlet-flowering evergreen greenhouse shrub. They are showy plants, of shrubby habit, remarkable for the abundance of their flowers, which are somewhat tubular, and open all along the branches. They thrive well in a mixture of loam, peat, and sand, and cuttings strike freely in sand, under a bell-glass. *G. Hookerii* is by far the handsomest plant of the genus, and the only one that choice cultivators care to grow. The struck cuttings must be potted off in small pots not more than three inches in diameter, and be grown near the glass in the greenhouse, with a liberal supply of water; but the draining must be perfect, for stagnant moisture would soon destroy them. As they advance and fill their pots, they must be changed to those of a size larger; and if the plants are inclined to ramble or run up high, the truant shoots must be checked by pinching the heart out, or by shortening altogether; this will make them come bushy, even if they were not inclined that way. When they have grown so as to fill a thirty-two sized pot, they will flower abundantly, and may be taken to the dwelling-house, or conservatory, or whatever other place they are to grace with their bloom.

GARRYA *elliptica* is one of the most graceful of evergreen shrubs; its chief beauty, however, is in its long catkins, which in the winter hang straight down in elegant tassels from the ends of all the shoots. The leaves are a dull green, and the catkins, which are, in fact, the bloom, are of a greenish yellow colour, and form the prettiest object imaginable. It is esteemed a hardy plant, grows shrubby, and is tolerably manageable under the knife, capable of being kept down bushy and short, or grown more pyramidal and elegant.

It delights in a loamy soil, not too adhesive. It is propagated best by layers ; a slight indentation on the upper side close to a joint (at which place it should be pegged two inches underground) one autumn, will secure plants by the next, and one of its great claims to our attention is, that it blooms while very small, and looks a very showy plant in a pot. The layers should be cut off in the autumn and potted, placed in a cold frame to establish themselves, and should then be planted out where they may be seen to advantage, for they would be lost in a crowd of brighter shrubs. Its blooms, or rather catkins, are handsome for months, and are in perfection in October.

GASTERIA.—One of the sections of Aloe. They have, for the most part, red flowers, and are very pretty succulents, requiring a greenhouse. Sandy loam. Suckers.

ASTELMA.—Greenhouse shrubs, with "everlasting" flowers. *A. eximium* is especially beautiful ; its leaves are white with thick woolly pubescence, and its blossoms are crimson in heads crowning the branches ; the plant grows from two to three feet high. They require sandy peat soil, smallish pots, a dryish atmosphere, and very careful watering.

ASTEROCEPHALUS.— Hardy annuals and perennials. Here is included the well-known Sweet Scabious, or Blackamoor's beauty. It is a very sweet-smelling flower, composed of petals forming a disk, and florets filling up the centre almost in the form of a cone. The smell is sweet to faintness, a good deal like honey ; the colour of the flower is dark brownish purple, lighter purple, lilac, and white. The seeds are sown in any open space, thinned out when the plants come up, and then allowed to grow until large enough to plant out in beds or borders where they are to bloom. The plant does not grow high, but the flower stems rise eighteen inches or two feet, with a single flower at the end of these stem-like branches. They make a diversity on the flower borders, and are excellent nosegay flowers, because the length of the stem and the lasting nature of the blooms are highly favourable for display. They flower in July. Seed is saved by gathering the flowers after they have faded, and drying them in the shade. They seed very freely, and there is no danger of getting poor seed even from the shops, for the wild flowers are nearly as good as the garden varieties. The perennial species are of easy culture in common garden soil, and are increased by division.

CALYSTEGIA.—Of this genus of convolvulus-like plants, some of which are troublesome weeds, there is one with double pink blossoms, very desirable in a flower garden. It is the *C. pubescens.* The culture of such a plant is extremely simple. A fragment of its perennial roots merely requires to be placed in the ground, and it will soon become established, and if not checked become a spreading and troublesome weed. The plant is a strong growing climber, flowering in summer.

CAMASSIA.—*C. esculenta,* called also the *Scilla esculenta,* is a strikingly handsome hardy bulbous plant, with large blue flowers in June or July. It grows best in a cool shady peat border; and, like other bulbs, is increased by offsets. Seeds are also sometimes produced.

CAMPANULA (Bellflower).—A most extensive genus of very handsome herbaceous plants, mostly perennial. The species vary very evidently in form and habit, but they are nearly every one hardy, and require the treatment of other hardy annuals and perennials. The *Campanula pyramidalis,* or Chimney Campanula, is worth paying some little attention to, because it is a trainable plant. The compost in which it should be grown is, loam from rotted turves one-half, dung from a decayed melon or cucumber bed one-fourth, and turfy peat one-fourth, well mixed together. Let a small healthy plant be placed in a four-inch pot and grown in a frame, for the purpose of being able to keep off heavy falls of rain and cutting winds. If it should throw up a stem for bloom, take off the top at once, for it is better that the plant should grow than bloom. When the pot is full of root, change it for a six-inch pot with the same compost to fill up, continue to grow it, and as fast as the roots fill up the one it is in, change it for a larger. The second season it may bloom; but continue the growing and changing to larger pots, and in three years you will have many spikes of bloom, which should be spread fan-like on a trellis, and in this state it completely covers a fire-place with its numerous beautiful blue flowers. (See *Horticultural Magazine,* Part 9.) Among the dwarf kinds, *C. pumila* and *pulla* (the former with varieties having white and blue flowers) are very pretty, and but a few inches high; *C. carpatica,* growing a foot and a half high, is a fine showy blue species for flower beds; *C. medium* is the well-known Canterbury bell, a biennial with purple or white flowers, growing in good loamy soil; *C. Lorei*

is a showy hardy annual a foot high, with flowers of various shades of purple.

ASPERULA.—Hardy herbaceous perennials of small size, and very pretty for rough shady shrubbery borders. *A. odorata* has white flowers, with the fragrance of newly-mown grass. *A. taurina* also has whitish flowers, and is very pretty. They prefer cool moist soil, but in other respects are not particular; increased readily by division. They flower in June.

ASPHODELUS (Asphodel).—Ornamental perennials when in bloom; they are hardy, and grow in common soil, increasing readily by division. *A. luteus* has yellow blossoms in June, and grows about a foot and a half high.

ASPIDIUM.—An elegant genus of ferns, of which the species indigenous to this country are now generally referred to other genera, as *Lastrea, Cystopteris,* and *Polystichum.* The hardy kinds grow on rockwork, or planted out in a shady peat border in a cool situation; or they may be grown in pots of turfy peat and loam, and kept in a cold frame. The tender exotic kinds mostly require a stove temperature, and a very damp close atmosphere. The hardy species are mostly deciduous.

ASPLENIUM (Spleenwort).—A genus of ferns of which the species are mostly evergreen, and very elegant. They require similar treatment to the *Aspidiums.* The Lady Fern, formerly *Asplenium Filix-fœmina,* is now called *Athyrium.*

ATHYRIUM.—This genus of ferns contains the Lady Fern, *Athyrium Filix-fœmina,* one of the most beautiful of the larger growing of our indigenous species. It is an admirable kind for planting on shady rockwork, or on the shady margin of shrubberies, growing most vigorously where the situation is damp as well as shady. The fronds are annual, that is, they grow up in spring and perish in the autumn, new ones being produced from the root in the succeeding spring. It grows in any light common soil. Grown under shelter in a pot, and also if placed in heat, it is remarkably elegant.—See *Moore's Hand-book of British Ferns.*

ARTEMISIA.—Hardy and greenhouse herbs and shrubs, with a few annuals, remarkable in many cases for a strong heavy odour. *A. Abrotanum,* the Southernwood of cottage gardens, is one of the most desirable; it is a dwarf shrub, growing freely in any common soil, and propagated readily by cuttings.

ARUM.—Some of the species of *Arum* are pretty plants: all are curious; the majority hardy perennials, but some requiring a greenhouse, others a stove. It is the floral sheath or spathe of these plants that forms the conspicuous part of the inflorescence. *A. Dracunculus* and *A. triphyllum*, are sometimes met with in gardens; their flowers are brown or purplish, and they grow about two feet high. Common soil suits them, and they increase with facility by offsets.

ASCLEPIAS (Swallow-wort).—An extensive tribe of herbaceous perennials, stove, greenhouse, and hardy, comprising many colours and habits. For the most part, they are hardy, from North America. There are not many varieties in estimation, although there are a great many species in the genus. *A. curassavica*, a stove plant with scarlet flowers, grows about three feet high, and is propagated from cuttings in the spring, struck in gentle heat under a bell glass, and as soon as they are well rooted potted into the size sixty pots with half loam and half peat; and these pots are to be changed as they fill with roots, until the plant flowers, which is in July, August, and September. After they have done blooming they may rest through the greater part of the winter; then turn them out of their pots, trim them and their roots, and pot them in fresh soil; they will grow larger and spread wider, and must still be changed to larger pots as they fill the old ones. A variety of this has a white bloom, and the two should be grown in a collection. They are easily raised from seed, which must be sown in pots in the spring and be pricked out several in a pot as soon as they are large enough, and from these pots go through their various changes from small ones to larger ones, like struck cuttings. *A. tuberosa*, an orange-coloured species growing about two feet high, is a very showy hardy herbaceous plant, growing best in a mixture of peat and loam, and increased by division. *A. syriaca* is a much larger hardy herbaceous species with purple flowers; this grows four feet high, and is a pretty plant for wide miscellaneous borders. The flowers of the whole family are of a highly curious structure.

BUGINVILLÆA.—The species *B. spectabilis* is a very fine stove climbing evergreen shrub, much of the beauty of which however is dependent on the large purple bracts, three of which are set around the three tubular flowers. It is a free growing plant, growing in loamy soil, but seldom flowering until it has

attained some age and size. Cuttings strike root freely in the ordinary way.

BURTONIA.—Handsome small evergreen shrubs, requiring the treatment of Chorozemas. *B. conferta, pulchella,* and *villosa,* are handsome purple-flowered species, useful in collections of these plants with butterfly-shaped blossoms, the preponderating colour among which is yellow; they bloom in the spring months.—See *Horticultural Magazine,* Part 49.

BRUNSVIGIA.—Showy bulbous plants, requiring a greenhouse temperature. The flowers are mostly of some shade of red. They are fine looking plants, but require a large proportion of pot room, and a very rich loamy soil. The culture of these, and other bulbs, should be seasonal; that is, the foliage should be grown as perfect as possible and well ripened; the bulbs should then be dried and rested for some weeks; and then subsequently the plants should be again watered, and excited into growth, when the bloom appears. They increase by means of the offsets from the bulbs. *B. Josephinæ* is a very fine species, with scarlet flowers, but not often seen in bloom.

ARISTOLOCHIA (Birthwort).—A singular race of plants, with flowers of extraordinary form, called by some the German-pipe flower; for they are as much the shape of some of the pipes as anything we have seen. There are several species, and all differ in the form of the flowers. They are for the most part climbers; some evergreen, some deciduous, some stove, others greenhouse, and a few quite hardy. The blooms are for the most part purple, whatever their form, and however different in size. Loam one-half, dung one-sixth, sandy peat one-sixth, make a good compost for the whole of them. They strike freely from cuttings in sand, under bell-glasses, and with bottom heat. They require trellises or supports of some kind. They are better planted out in a conservatory, than under any other mode of growth; for as they grow a great height before they flower, they require very long trellises in pots, and have to be trained up and down, or, which is the best way, round and round a pillar the same size all the way up. Of all the forms for supporting climbing plants, the pyramid is the worst; for as the branches increase in number as the specimen advances, and in no possible case are lessened, there is the more surface required the higher it goes; so that lessening it is a positive evil, and leads to the ends of the shoots all coming together in confusion. To keep the pillar the same size is the

least that we can properly do. The proper way is to train it round, close down to the pot, and keep on about two inches from one turn to the next. Some of the larger-leaved sorts may require a little more room, but they will all grow in that room, and the pillar must be high in proportion to the room they want.

ARMERIA (Thrift).—A very interesting group of dwarf herbaceous plants, nearly all of which are hardy. One of these is the well-known pink-flowered thrift, *A. vulgaris*, used as an edging for flower-borders. A white variety of *A. maritima* is very desirable for a similar purpose. Some of the best hardy sorts are *A. pseudo-Armeria, cephalotes, plantaginea, latifolia*, and *dianthoides*, all of which have red or pink blossoms; they vary in height from six to eighteen inches. They prefer sandy loam to grow in, and are increased by dividing the crown, and planting the separate pieces as cuttings under hand-glasses. They are fine rock-plants, and also do well in pots.

BIGNONIA (Trumpet-flower).—This is a family chiefly of stove-climbers, very well worth attention; and there are two or three that may be grown in the open air, on a south wall. The only hardy sort is *B. capreolata*, which has scarlet flowers. *B. jasminoides* is a greenhouse variety. The flowers come in bunches in June; are all tubular. They are best grown in loam and peat, and require a very large pot before they come into flower, unless it be an unhealthy bloom from a half-starved plant. They may be layered, and will strike at every joint, or cuttings will root with bottom heat and a bell-glass. The best situation for them is a stove-conservatory, where they have plenty of room, and can be planted out; because when once matured they bloom very freely, and are very showy. The different varieties afford us white, yellow, red, orange, scarlet, white and yellow, red and yellow; and where some pains are taken in selecting and growing them in plenty of room, the genus is worth the trouble. *B. picta, Lindleyi, Chamberlaynii*, and *venusta*, the two latter with orange, and the two former with variegated white and purple flowers, are very showy stove plants. The hardy kind, formerly called *B. radicans*, is a species of *Tecoma*.

ARGEMONE (Prickly Poppy).—A family of very second-rate annuals and herbaceous perennials from Mexico. The annuals are sown where they are to bloom; the perennials are

increased from suckers, which are abundant when the plants are in health. *A. Barclaiana*, or *intermedia*, as it is sometimes called, has a cream-coloured flower; *grandiflora* a white; both of these are perennials. The annuals are white, yellow, and sulphur, and the whole rank with very common border flowers.

ARDISIA.—Stove plants grown chiefly for the appearance of their fruit, the berries looking always bright and coral-like, and hang round the stems so as to set the plant off to great advantage; they bloom and bear fruit very small, and therefore are seen in all stoves. There are several species, but their treatment should be all similar; even the greenhouse varieties will succeed in the stove. There are many of the sorts not much esteemed. They all grow well in loam dung and turfy peat in equal quantities. Cuttings will root well with bottom-heat in sand, the bottom of the wood, however, touching the mould. The pot should be filled within an inch of the top, and the rest should be silver sand. The cuttings should be separated just under one joint, and there should be one joint only above. Well water them in, and plunge the pot in the tan, covering the cuttings with a bell-glass. Wipe the glass every morning until the cuttings have begun to grow, when the chances will be in favour of all having rooted. Pot them now separately in three-inch pots, and let them be near the light; occasionally refresh them with water. If any bloom comes on while they are young, nip it all off. The only thing required beyond this is to shift from smaller to larger pots, water, and keep them near the glass to prevent their being drawn. They may bloom and bear their berries the second season, and they will soon show red berries, which seem hardly ever to fall off till the new ones are ready. They may be grown to almost any size, by shifting from one pot to another, and no plants are so gaudy and rich as they are when in perfection. They grow best in two parts loam from a pasture, one part dung from a melon-bed rotted to mould, and one part peat.

ARBUTUS (Strawberry tree).—A very interesting tribe of shrubs and trees, for the most part hardy; and those which, if let alone, would be shrubs, may be with the greatest facility grown into handsome standard trees. *A. Andrachne* flowers in April, with white bell-shaped blossoms, almost like bunches of white currants. *A. Unedo* and its varieties are covered

with flowers in October; both bear somewhat sparingly round strawberry-like fruit, only much smaller. Many species and varieties are cultivated, but there is less difference in them than there is in many other tribes of evergreens. They are increased by layering, and may be raised from seeds; and the latter is mostly resorted to as the easiest and best. Nor do the seedlings exhibit much variety; thousands may be raised without exhibiting much difference in the foliage. They thrive best in the soil prepared for azaleas and other American plants, growing freely in many natural bog soils; but they will succeed in shrubberies in general, where the loam is at all light and sandy. The various sorts may be budded, grafted, or inarched on *A. Unedo*. *A. Andrachne*, which is deservedly a favourite, and *A. procera*, which is the best of the family, are grafted on *A. Unedo* to a considerable extent.

APIOS.—*A. tuberosa* is a tuberous-rooted climbing plant, growing six or eight feet high, rather pretty, the blossoms being purple and butterfly-shaped. The tubers have been recommended as a substitute for potatoes, but are not likely to supplant them. The tubers should be planted out in a rich loamy soil, and if for flowering, the plants may stand undisturbed for years. They are propagated by division of the tubers. The plants bloom in July or August.

APOCYNUM (Dog's-bane).—Acrid, hardy herbaceous perennials, of tall, rambling growth, but with small white or pink cup-shaped flowers, not very showy. They grow very freely in common soil, and are increased by division.

ARETIA.—Pretty little plants of the primulaceous order; hardy, and of perennial duration. They are well adapted for rock work, or for pot culture, in a compost of sandy loam and peat; they are propagated by division. *A. alpina* has pink flowers; *A. helvetica*, and *pubescens*, white; and *A. Vitaliana*, yellow; all blooming in June.

ANTHYLLIS.—Beautiful and free-flowering subjects; the hardy species adapted for rock work; their flowers are butterfly-shaped. Some are herbaceous perennials, and these increase freely by seed or division, and grow readily in light sandy soil; others are annual, and these propagate by seed. The shrubby species mostly require greenhouse protection; they should be potted in a mixture of equal parts loam and peat, and are increased by cuttings planted in sandy soil and set into a hot-bed, and very frequently by seed.

ANTIRRHINUM (Snapdragon). — *A. majus* is a very pretty perennial, growing two feet high, yielding spikes of flowers variously coloured ; some crimson and white, some purple and white, some scarlet and yellow, and many other shades ; it grows well in a common border, and blooms in July and August, and even before and after. It seeds freely, and these may be sown in a pan or wide-mouthed pot, to be planted out, when large enough, in a bed four feet wide, the plants six inches apart. In the autumn, when they have grown into pretty good strength, they may be removed where they are to bloom ; and any varieties that exhibit novelty may be marked to save and propagate. When you have a good variety, you may propagate it by cuttings ; small unblooming shoots are the best for this ; they may be taken off, a few of the lower leaves removed, and the cuttings inserted in pots with glasses over them. They are not long striking, and then the young ones may be potted off singly, into the pots called sixties. These may be changed for forty-eights, as soon as they are full of roots, and from that to thirty-twos, in which they will bloom well ; and there are few more showy flowers for either pots or borders. Of course they may be planted in beds or borders, instead of pots.

APHELANDRA.—Noble looking stove-plants, requiring to be treated liberally. Young plants should be raised from cuttings in the latter end of the summer, and kept during winter in sixty-sized pots. Early in spring these should be shifted, and kept in a moist hot atmosphere, well exposed to the light, and where they may be freely aërated. The pots must from time to time be exchanged for larger ones, and the young shoots must be stopped to induce a bushy growth. A rich soil of turfy loam and peat, well drained, is proper for them. The blossoms appear at the end of the shoots, about August. The two species are *A. cristata,* and *A. aurantiaca ;* the former with scarlet flowers, the latter orange.

BRACHYSEMA.—A genus of evergreen climbing shrubs, requiring a greenhouse. *B. latifolium* is handsome ; the butterfly-shaped scarlet flowers are borne during summer. It requires a well-drained soil of peat and loam in equal proportions, made porous, if necessary, by the addition of sand. Seeds or cuttings are both available for propagation. It is a beautiful plant for the pillars of a greenhouse, near the front, where they are well exposed to light.

BRACHYCOME (Swan Daisy).—A half-hardy annual, which grows about a foot high, and bears a blue composite flower in July, August, and September; it may be sown in heat early in the spring, and when large enough planted out in the borders or beds, six inches apart; or it may be sown thinly out of doors in April, and be thinned out, but it is a month later in general than it is when sown in heat and planted out in May; any good garden soil will do for it. The species is called *B. iberidifolia;* the colour of the flowers varies from blue to white, through various intermediate shades of blue and gray, and some are pinkish, and others striated.

BRIZA (Quaking Grass).—One of the few genera of grasses which are admissible to the flower-garden. *B. maxima*, the greater, and *B. virens*, a small kind, are very elegant. They bear roundish, drooping, dangling, chaffy-like clusters of flowers. The seeds may be sown in the common soil, at the same time with other hardy annuals.

BORAGO (Borage).—This gay annual is one of the best flowers to sow in the neighbourhood of bees, for it is said they derive more nourishment from the bloom, than from any other flower that blows. The soil is of no consequence, one seems as good as another; the border or bed may be raked to stir the surface, the seeds thrown carelessly over the space, and raked in; and all that will be required afterwards will be to keep it clear of weeds, and see that the plants are not too thick. There are several species or varieties: *B. orientalis* is an herbaceous perennial; *B. laxiflora*, a trailing perennial; and *B. officinalis*, and *albiflora*, are annuals; the last two are the most common and most useful; the whole of them are perfectly hardy. The perennials may be multiplied by parting the roots after they have done flowering. The prevailing colour of the flowers is blue.

ANCHUSA.—The species are fine herbaceous plants, mostly perennial, but including some biennials and annuals. The flowers are mostly blue or purple. *A. paniculata* is a fine blue-flowered tall-growing perennial, very showy, and common in gardens. The perennial kinds grow freely in common garden soil, and are increased by division. The annual and biennial kinds are best sown where they are to bloom in the open border, as they do not transplant well. One species, *A. capensis*, requires to be sown in pots, and kept in the greenhouse.

CRATÆGUS (Hawthorn).—The most ornamental of the smaller trees. It is rather an extensive family, but the varieties have a considerable general resemblance to each other. The majority of them grow into trees of from twelve to twenty feet high, with considerable diversity of habit. The flowers are for the most part white, in bunches, so familiar in the common "May," or hawthorn; but there are some with pink blossoms. The trees are, however, no less valuable on account of their flowers than their fruit, which is very ornamental in the autumn; the flowers being developed in the spring, or between April and June. We shall name a selection of the kinds, in regard to their different qualities and properties, thus:—For flowers—*C. Oxyacantha præcox*, the Glastonbury thorn, white, the earliest of all, blooming in April; *C. O. flore-pleno*, with double white flowers; *C. O. punicea*, with crimson flowers; *C. O. rosea flore-pleno*, with double crimson flowers. For fruit—*C. coccinea*, fruit scarlet; *C. mexicana*, fruit pale yellowish-green; *C. orientalis*, fruit coral-coloured; *C. Aronia*, with yellow fruit. For habit of growth—*C. Crus-galli*, spreading; *C. glandulosa*, compact; *C. Oxyacantha pendula*, drooping; *C. O. stricta*, fastigiate. *C. Pyracantha* is an evergreen trailing species, with bunches of fiery berries in winter; it is one of the best of plants for training against a wall or building. The thorns all grow freely in good garden soil, preferring that of a loamy texture. They are, in ordinary cases, better grown as small standards or trees, than as bushes. It is usual to graft all the kinds upon stocks of the common hawthorn; an upright leading shoot is then trained up to a sufficient height for the stem, which may be four or six feet high, when they are pruned to form the head. The common kind for stocks, or for the purpose of forming hedges—for which it is one of the best of deciduous subjects—is raised from the seeds or haws, sown broadcast in beds, and transplanted when a year old into nursery beds. Fences are best planted with two-year old plants. The stocks for grafting should be four years old, and if they are not placed where the trees are to remain, they should have been transplanted annually previously to grafting them.—See *Horticultural Magazine*, Part 12.

CONVALLARIA (Lily of the Valley).—This genus now includes but one species, the universally admired lily of the valley: a dwarf herbaceous perennial, bearing in May little

spikes of drooping, white, bell-shaped flowers of delicious fragrance; these flowers are attached to slender stems, which average six inches in height, and just issue each from between a pair of broad clear green leaves, forming one of the loveliest of nature's contrasts in colouring—rich green and pure white. The name of the plant is *C. majalis;* there are varieties, in one of which the flowers are pinkish, and in the other double white, but the simple form is the most attractive. The lily of the valley will grow in any common garden soil, and flourishes in shady places. The plants are increased by dividing the roots. Planted in pots, they are beautiful subjects for forcing into early bloom.—See *Horticultural Magazine*, Part 16.

PAPAVER (Poppy).—Many of the species of this plant are weeds unworthy of a place in any garden, although some are kept on the lists of garden seeds. The family is hardy throughout, and comprises herbaceous perennials, biennials, and annuals; the latter have increased in number very much, if we allow that colours make a difference. The carnation poppy is the only sort worth cultivating, and there are many who think the best of the race not worth the most obscure corner in a garden. It is however certain, that if colours have any charm in a garden, the sort known as the carnation poppy has a claim, for it is beyond the power of enumeration to describe, or even mention, the hundreds of different tints and mixtures that a pinch of good seed will produce. The perennials want no culture, but to be planted and left to themselves. The annuals will overrun a garden, if we are not careful to remove the pods of seed before ripening. They should be sown thinly in any corner or place out of the way, and when large enough, placed in all the borders and beds where they are wanted. If any one should show a flower at all secondary in quality, pull up the plant immediately; allow none but very double and very pretty ones to be left in the ground; the seed from these, or from the most beautiful of them, will give good varieties another year; but even this ought not to be allowed to shed about the ground, or you will have poppies all over the place, and however good they may prove, they will constantly be in the way. The sowing them in one place and planting them out in another, gives them a very good check, which prevents them running up too high.

JASMINUM (Jasmine).—A genus of favourite shrubby plants with trailing stems, adapted for training on walls,

trellises, &c. Some of the species require stove heat, others the temperature of a greenhouse, while some few are hardy. Of the latter the favourite kinds are the common Jasmine (*J. officinale*), with bunches of white flowers, which are highly fragrant, and are produced in July; *J. nudiflorum*, which bears yellow flowers on its yet leafless shoots, in March; and *J. Wallichianum*, a sub-evergreen kind, also producing yellow flowers, which appear in June. Their culture is simple. They are propagated by cuttings, planted in sandy soil under hand-glasses; and when established, grow freely in common garden soil. The greenhouse and stove kinds grow in a mixture of equal parts loam and peat, with some sand added. *J. odoratissimum*, with yellow flowers, in June, and *J. azoricum*, with white flowers, in July, both evergreen, are among the best greenhouse species. *J. Sambac* and its double-flowered variety, are the best of the stove kinds; they have white flowers, highly fragrant, and are almost constantly in bloom.

LATHYRUS.—This genus, comprising numerous annual and perennial species, contains the sweet-pea (*L. odoratus*). There is not among the annuals a better nosegay flower than the sweet-pea, and there are now many seedling varieties, which render it more lively as a garden ornament than the old sombre colours would be alone. There has been an attempt to class their colours and keep them separate, and a majority will sometimes prove like the parent; but they do not look so well any way as mixed, and therefore we consider they all should be sown together. They may be sown in pots to push forward for early bloom; and two months afterwards they may be sown in the borders of the open ground; the first sowing in pots being made in February, and the sowing in the borders in April; but others may be sown in May and June if a succession is desired. They grow in any soil, and all the trouble they want is to be supported by a few dead branches stuck in the ground for them to cling to. If they are not allowed to seed, and the decayed blooms are removed as fast as they decline, the bloom will continue some time; but if they are allowed to swell their pods, the bloom goes off pretty quickly. The perennial or everlasting pea (*L. latifolius*) requires only to be sown once, and the root not only lasts many years, but spreads wider and wider every year, unless curtailed by violence.

TULIPA (Tulip).—The variegated tulips of the gardens are

the progeny of *Tulipa Gesneriana*, a hardy bulbous-rooted perennial. These flowers are grown in collections, and have a noble effect in a long bed. The bulbs are planted in October or November, shoot above ground in February, and bloom in May. They grow in nothing so well as in plain good sandy loam taken from a pasture with the turf rotted in it; and it is the custom to dig out the bed from two to three feet deep, that this soil may be placed therein. They are planted six inches apart, the bed being four feet wide, and containing seven flowers across. The tallest flowers, which are known well to the fanciers, are planted in the centre row; those a little shorter in the rows next to the middle; and the shortest outside, so that the tulip bed when in flower looks like a bank of bloom. The small offsets are planted in separate beds, until they grow large enough to plant in the principal beds. They are raised from seed to produce new varieties, and they multiply by offsets which come of themselves. The seeds may be sown in pans or wide-mouthed pots in the early spring or the autumn, and placed in a garden-frame; they will come up, and about June turn yellow and die down, but little bulbs will have formed; some take them up and replant them, but if they are not too thick they may be left until the next year. They will be five or six years before they bloom, and then perhaps only show one colour, instead of being striped; they are then called breeders, and may bloom of self colours some years before they break into stripes. They are an imposing flower, and when very good will bear a high price, until the sort is widely propagated. (See *Horticultural Magazine*, Part 29.) The Van Thol tulip, a pretty early sort, with the flowers scarlet and gold-colour, is the *T. suaveolens*. This blooms naturally in April, and is very well adapted for forcing even much earlier than this.

KALMIA.—The kalmias are evergreen shrubs, belonging to that set, including the rhododendron and azalea, which are called "American plants"—so named from the majority of them having been originally obtained from America. The handsomest of the kalmias is *K. latifolia*, a broad glossy-leaved dwarf evergreen, bearing a profusion of very pale pinkish blossoms in bunches at the ends of its branches, about the middle of May; these blossoms are curiously shaped, looking somewhat like inverted squat-shaped umbrellas without the handle: however they are very handsome. The other

kinds, *K. angustifolia* and *K. glauca*, are smaller in all their parts, but the flowers are deep red. They all force into early flower readily. The proper soil for them is good peat earth; it is, in fact, the usual and the best practice to plant these kalmias, together with rhododendrons, azaleas, &c. in separate beds or patches prepared with peat soil. They are usually increased by layers, but may also be raised from seeds.

RHODODENDRON (Rose-bay).—Although there are some very distinct characters in this handsome family of plants, there is little difference in their form and habit. Some from the East have superb flowers, and the English hybrids, as they are called, meaning however English seedlings, extend the splendour of this family greatly beyond that of any of the original species. *R. catawbiense*, having the handsomest habit of all the American species, has been so improved from seed, that varieties may now be had of almost every colour. The Indian and hardy species too, have been so crossed, that the most superb varieties have been produced with the best qualities of several species combined. For new varieties raise seedlings; to propagate approved sorts, layering and grafting may both be successfully applied. In this as well as some other tribes of plants in which seedling varieties have been botanically named, there is the greatest confusion; they must be seen in flower to be purchased with advantage, for the name stands literally for nothing. These plants are so improved now, that if a person had to plant a shrubbery, it would be madness to buy the original *R. ponticum*, or any other that was not of first-rate habit and character: indeed the time has gone by for purchasing even evergreen shrubs at random, as our forefathers were wont to do. All that bear flowers should bear the best flowers, and the *R. ponticum* would cut a sorry figure, with its mean, narrow points, stricken foliage, and still poorer flowers, among the splendid varieties that have been raised. Sow seeds in pots of two-thirds peat and one-third loam, and place them in a cold pit; keep the soil moist, for it must not once dry after the seeds are in. When they are large enough, prick them out an inch apart in other pots or pans, and as they advance large enough, pot them singly or plant them in peat beds, giving them room from year to year by taking away alternate plants and putting them elsewhere. They may continue in the beds till they flower. If there be any doubt of their hardiness, put hoops and mats over them, but

it is useless to raise tender ones, while there are so many fine hardy varieties.—See *Horticultural Magazine*, Part 41.

SILENE (Catchfly).—A genus of annual and perennial plants, bearing trusses of pink, red, pale rose, and lilac blossoms, pretty enough as border flowers, but put greatly in the background by more showy and popular subjects. They bloom from May to July, and all last some weeks in bloom. The annuals may be sown in the open border where they are to remain : if they are sown too thickly they will draw up, therefore they should be thinned. The perennial sorts grow in common soil, and are propagated by division.

DIGITALIS (Foxglove).—The ordinary Foxglove (*D. purpurea*) can hardly be esteemed as a garden flower, common as it is in a thousand places; but there are varieties that may be worth notice in the estimation of many people. One variety is spotted, for instance, and the shops profess to sell the seeds of it ; and there are others said to have longer flowers, and hybrids of various colours. The culture, however, of all is alike, and very simple. It is sown one season and blooms the next. It requires no preparation of the soil, the ordinary border is sufficient. The seeds may be sown in May or April, as thin as may be, upon a piece of ground that it may stay on for a time: when it comes up the plants must be thinned to six inches apart; those taken up to thin them must be planted out somewhere else six inches apart, but those not removed will be the strongest. Keep all very clear of weeds, and in the spring stir the earth between the plants,—it will be of great service to them. When they bloom you may pull up all the common ones ; destroy everything common-place, and mark the good ones for seed. The foxglove in the garden grows up to three or four feet, has a long spike of narrow tubular or bell-like flowers, varying in colour, some purple, some white.

CERCIS (Judas-tree).—There are two species of this genus cultivated, both deciduous small trees, flowering in May and June, and bearing pink blossoms. The common sort, which is rather the largest growing of the two, is called *C. Siliquastrum*. The trees are beautiful objects when in flower, the blossoms being produced before the leaves, and appearing about the same time as those of the laburnum, the guelder-rose, and the hawthorn, with which they contrast admirably. It prefers a rather rich soil of a loamy nature, and requires a

sheltered situation. In many places it is planted against walls, which situation it well deserves. The seeds are sown in the spring, and produce plants which come to bloom in three or four years. The young plants require protection.

PÆONIA (Pæony).—The majority of these plants are hardy perennials of the larger sort, growing from two to three feet high, and bearing large globular blossoms, of various colours. One sort is somewhat shrubby, and is called the Tree Pæony (*P. Moutan*), and of this there are many varieties; they bear large showy flowers, but more loose and expanded, and less globular, than the double-flowered varieties of the herbaceous kinds. They are all very beautiful. The varieties of the perennial herbaceous kinds have mostly sprung from *P. edulis* and *P. officinalis*, and comprise white, blush, pink, scarlet, rose, crimson, and in some cases white delicately tinted with rose. There are also numerous colours among the varieties of the tree pæony. The single-flowered pæonies are like large-flowered poppies. They grow in rich loamy soil; the shrubby kinds in loam and peat. The latter are propagated by various means, as by division, by grafting on the herbaceous kinds, and by layers; the others are increased readily by division. May is the general blooming season, but the tree pæonies come into bloom in April, when sheltered.

DAPHNE.—A very interesting family of hardy and greenhouse shrubs, comprising some of the prettiest and most fragrant ornaments of the dressed ground and shrubbery. *Daphne Cneorum* is a little dwarf spreading plant, producing in July bright pink flowers in great abundance at the ends of all the shoots. *Daphne pontica* is a taller, but bushy plant, with inconspicuous flowers of a greenish yellow cast, but highly odorous in the evening; they appear in April and May. The *Daphne pontica* is the stock upon which other daphnes are often grafted; another is the *D. laureola*, also called *spurge-laurel*. The plants commonly called red and white mezereum are the *D. Mezereum;* they bloom in March; *D. collina* has a pretty purple flower in March. These are all showy in borders; *D. odora* is a greenhouse plant, or at least a frame plant, and has pinkish flowers in March and April, as fragrant as any flower in the garden. All these plants grow well in pots, and thrive most in peat and loam, and all but the greenhouse kinds will do well in the shrubberies. They propagate easily by layers, and also by grafting upon the sorts used as stocks. *Daphne*

Dauphinii, also called *D. hybrida*, is a seedling variety which is perpetually in flower when kept in a greenhouse. The common whip-grafting does as well as any for these plants, but *D. odora* is more frequently done by inarching; they must have pot room, and the *D. odora* soon gets shabby if it be at all starved; they grow in a compost of equal parts, good light loam and peat.

SAXIFRAGA (Saxifrage).—A genus of hardy perennials, of close tufted growth, and mostly of small stature. All the species are admirably suited for rock-work, thriving when planted on raised banks among rough stones, which they soon cover with their matted branches. One species, *S. umbrosa*, familiarly called London-pride, is one of the most valuable of plants for town gardens; in fact, it thrives anywhere, as well in the midst of smoke and shade as in the pure air; this grows a foot or more high, and has pink flowers prettily spotted, which are produced about May. They flourish in any kind of light soil, and increase to any extent by division. The London-pride is sometimes planted as an edging to flower borders, and looks very pretty, but requires to be frequently replanted.

CYTISUS.—Elegant, and for the most part showy shrubs, and small trees. *Cytisus laburnum* (Laburnum), and *C. alpinus* (Scotch laburnum), are well-known free-flowering trees; and though the most familiar and common, are the most beautiful of the whole family. They may be raised from seeds, which need only be sown on the common open ground and raked in, where they may be thinned to proper distances two or three inches apart, and remain the first season; the next, they may be planted out in rows, a foot from plant to plant, and two feet from row to row. As all these trees are wanted as standards, whether for their own sake or for stocks on which to graft or bud other varieties, therefore the side shoots, but the top two or three, should be rubbed off while merely buds; when they are tall enough their heads may be allowed to grow and bloom, because those with the largest and handsomest racemes of flowers may be saved for laburnums, and the others may be worked with the different species of Cytisus, some of which are white, others yellow, and many are of different forms and habits, but all make good standards; some of them have small racemes of flowers, others bloom all the way along the branches, some are pendulous, others shrubby and upright, but all very pretty, and worth growing in col-

lection among ornamental shrubs. (See *Horticultural Magazine*, Part 18.) Most of the kinds may be grown as dwarf shrubs in any common soil, and are readily increased either by seeds or by layers.

IBERIS (Candy-tuft).—Of this old annual there are several varieties, white, purple, scarlet, Normandy, and some other merely seedling kinds. It is perfectly hardy, will grow in any soil, and only requires sowing in pots or in the border where it is to grow. It will sometimes shed its seed, and that will come up and stand all the winter if it be not too severe. It is not a bad clump plant for a geometrical garden, because it does not grow higher than six or nine inches; it has a complete mass of flowers in its season, and is literally covered with bloom. It is easy to make a long season of it by sowing some in pots as early as February, and thinning them as they come up. These pots have to be nursed in the greenhouse or frames till May, when they will be almost in flower, and the seed sown in the border will be a month or six weeks later before it flowers. The annual species, generally grown, are, *I. umbellata*, purple; *I. coronaria* and *I. odorata*, white. Some of the species are evergreen shrubs, chiefly white, and there is one greenhouse plant, from Gibraltar, and called on that account, *I. Gibraltarica;* this has pink and white flowers; but not one of the species equals the now common Normandy Candy-tuft, called *Iberis umbellata*, and the varieties so long and so well known among the growers of annuals.

HYACINTHUS (Hyacinth).—The bulbous roots of the varieties of this odoriferous and very beautiful plant are imported in immense quantities from Holland, and are for the most part merely bloomed in this country, for they are thrown by or planted in common borders to degenerate from neglect. To grow the hyacinth properly the soil should be composed of two-thirds the loam from rotted turves and one-third clean but coarse sand. If the loam has not been obtained from rotted turfs it will be so much poorer that it will require an equal quantity of rotted cow-dung to compensate for the absence of the vegetable mould formed by the rotted turf; it would then be loam, sand, and dung rotted to mould in equal quantities. In beds formed of this the offsets of the hyacinth will grow, till in two or three seasons they come to full size and perfection; and hyacinths so grown will not degenerate; but they must be planted in October, and be taken up when the leaves

die down. Hyacinths in glasses should be grown in rain-water changed every week; and if grown in pots, the soil should be, as we have described it; when grown in the borders or in beds, they should be covered against frost, because it will damage the bloom, though it will not permanently injure the plant. Those grown in water should be put in the ground directly their flowers have decayed, for they derive considerable strength from it, and besides that, perfect their offsets, if they have any. Hyacinths will grow well in wet sand, and when it is covered with moss the plants look very pretty. (See *Horticultural Magazine*, Part 29.) The cultivated varieties are the progeny of *H. orientalis*. *H. amethystinus* is a pretty pale-blue flowered small hardy bulbous plant, flowering in April; the others bloom in March and April, and the varieties comprise blue, red, white, and a kind of buff-yellow.

AZALEA.—A fine genus of low shrubby plants. The American, or hardy Azaleas (*A. pontica, calendulacea, nudiflora*, and *viscosa*), are inhabitants of all our best shrubberies, and have been so wonderfully improved by seedling culture as to throw into the shade the greater part of the original species. The florists of Ghent made a great advance, and there are now to be selected twenty or thirty varieties better than the very best of the original American species. Every year, too, adds to the diversity of sorts and to the size of the flowers, which is one of the characteristics of the improved kinds. In many places they thrive in the common soil of the garden, but in general they require peat earth to be dug in with the natural soil; and where there is to be any quantity grown, or a nursery of them made, beds of peat earth, or compounds of the greatest part of turfy peat earth, must be made up. They are raised from seed sown in the open air, and raked in as any other common seed; but from its extreme diminutiveness many prefer sowing in pans and wide-mouthed pots. When they are large enough they should be planted out in peat beds, six inches apart; the second year they may have every alternate plant taken out and planted elsewhere, to make room for them; and as they increase in size they should have more room. They are propagated chiefly by layers, but cuttings of the last year's wood will root very readily in sand, like the Indian azalea, though these do not require bottom heat.

ACIS.—Small, but very pretty bulbs. They are all dwarf

plants, and quite hardy. They should have a light sandy soil. Propagated by means of the offsets from the bulbs, which should be carefully separated, and planted where they may not be disturbed. *A. autumnalis* has very delicate pink flowers. The other species have white and red blossoms.

ABELIA.—A small family of very pretty shrubs, of which *A. floribunda*, with long tubular rich rosy purple blossoms, requires a greenhouse. And *A. rupestris* is nearly hardy, surviving our moderate winters in dry sheltered situations on rock-work, for which its low bushy habit renders it well suited; its flowers are blush coloured and very pretty. (See *Horticultural Magazine*, Part 15.) They readily propagate by cuttings, planted in sandy soil, in a gentle heat, and grow in any good free turfy soil. *A. floribunda* prefers a mixture of sandy loam and peat.

AZALEA INDICA (Indian Azalea).—The varieties of *Azalea indica* are evergreen greenhouse shrubs of great beauty, raised by cuttings in sand under a bell-glass, and with moderate bottom heat. In preparing these cuttings, let them be cut up to a joint,—the base of a leaf,—the lower leaves for an inch stripped off, and the stem stuck an inch into the sand, which should lay on the top of some ordinary soil with which the pot should be filled within that inch, and the top the necessary inch of sand; the bottom of the cutting, therefore, will reach, but not go into the soil; cover with a bell-glass, to be wiped dry inside every morning. When they are struck they must be potted off into small pots, and changed from time to time as they fill. They may be kept in pits in the summer months, but the greenhouse is the place to bloom them in perfection. Seed may be sown in wide-mouthed pots, and be kept in the greenhouse; when well up they may be pricked out into pots, the plants not being less than an inch apart; when they are large enough, each plant may have a pot to itself. They cannot have too much light and air, and they are, when well grown, a complete mass of bloom in May. They may be grown to almost any size by shifting from one pot to another; and no plants are so gaudy and rich as they are when they are in perfection. They grow best in two parts loam from a pasture, one part dung from a melon bed rotted to mould, one part peat earth. (See *Horticultural Magazine*, Parts 32 and 37.) Both these and the hardy kinds are rapidly improving under the hands of English florists; and in their

progeny exhibit many different colours in the blossoms. Both sets bloom in May.

BABIANA.—A family of greenhouse bulbous-rooted plants. They are nearly related to the *Ixia*, and require exactly similar treatment, which is, to keep the bulbs quite dry when they are ripened off after growing; to reapply moisture when they indicate a disposition to renew their growth; to supply them liberally while growing; and to plant them in loam and peat, made somewhat sandy. Purple and blue are predominating colours among these flowers, which are produced from April to June.

BÆCKIA.—Greenhouse evergreen shrubs of the myrtaceous family, bearing small white flowers at various seasons. They grow in sandy loam and peat; and are multiplied by cuttings planted under a bell-glass in sand.

BALSAMINA (Balsam).—The garden balsam, of which numerous handsome varieties are grown, is the *B. hortensis*. This old favourite requires very simple culture in a rich compost of loam and vegetable mould; if the loam is from rotted turves it requires nothing else. Sow the seeds in pots, and put them in a cucumber frame or melon bed. As soon as they are up, and before they have time to draw, let them be potted out one in a pot, size sixty, or three inches across. Let them have a declining hotbed, or, if one be made on purpose, let it be made very moderate. In this bed they must have air, and the plants must be shifted every time the pots fill with roots; by giving air you prevent the plants from drawing up, and they must be so placed that the tops of them shall be near the glass. In this way, you go on moving the plants from one pot to another as fast as the old one gets filled with roots. The heat of the bed must not be neglected, although it ought not to be in extreme; and the pots will have to be lowered, or the frame raised, as the plants increase in size. As the whole of the plants can hardly be wanted in pots, some of the least promising that appear among them, when they are about half grown, may be turned into the borders, where they make a very pretty show, and seed freely. Those in pots have to be put into the greenhouse when they have grown too large for the frames; and they should be turned every day, that one side may not be drawn more than another. By constant shifting, as the plants fill the pots, and keeping them growing near the glass, they can be grown very large, and the flowers

will cover the stems all round.—See *Horticultural Magazine*, Part 42.

BANKSIA.—A family of plants from New Holland and New South Wales, requiring greenhouse culture, as much air as possible, excellent drainage, careful watering, but not too much. They bear a curious, but not a handsome flower, something like the seed-pods of the thistle, but the florets are yellow or greenish white; there is *B. coccinea*, of which the florets are red, and *B. littoralis*, of which the florets are orange colour. They are all evergreen shrubs. In potting these plants put plenty of crocks at the bottom to make a good outlet, as it were, for the water; then fill with the proper compost, which should consist of loam and peat. If this, upon being mixed, should appear too adhesive, it may be changed a little by the addition of sand; but in most cases it will require nothing. Cuttings of ripened wood will strike well in an inch of sand upon a pot, otherwise filled with the compost, and an inch of sand at the top is enough. When the cuttings are struck, pot them into forty-eight sized pots, and grow them in the lightest part of the greenhouse with plenty of air. Water daily if necessary, and constantly examine them to see if they require it. If any of them appear to be more lost than the rest, the drainage is faulty, and must be looked to. Shift from one sized pot to another as they become filled with roots.

BAPTISIA.—Hardy herbaceous perennials, with yellow, white, or blue butterfly-shaped blossoms in June and July. They grow freely in loamy garden soil, and are multiplied without difficulty by division.

CALATHEA.—*C. zebrina* is one of the handsomest stove-plants in existence, in respect to its foliage, which is large, velvety, and beautifully variegated with dark green and a paler tint. It is a perennial, growing very freely in a light loamy soil, and increasing by division. The flowers of this species are of a purple colour, and are produced from April to July. The leaves are the most conspicuous part.

CALCEOLARIA (Slipperwort).—An extensive genus of very showy plants, shrubs, and herbs, mostly requiring greenhouse protection, but some nearly hardy, and most of the kinds growing freely in the open air in summer. It is only for the last ten or fifteen years that the great advance was made in this curious flower; and it is to be regretted that the

finest quality of the plant has been lost sight of, through the ill-advised plan of giving prizes for the worst as well as the best habit of plants. Shrubby calceolarias are very handsome objects. The herbaceous kinds have larger, coarser, and worse shaped flowers; and prizes have been given for these as well as the others. The worst consequence has been the production of a kind that are neither one thing nor the other, and anything but an improvement. The calceoloria is, strictly speaking, a greenhouse plant; it will bear no frost, though there are hardy ones in the family. Their flowers are variously spotted, on yellow and pale grounds; are inflated, like ill-shaped bladders; but are very elegantly suspended on their wiry footstalks, forming as pretty and as brilliant an object as any in the greenhouse. They are generally kept, until they are rising for bloom, in pits, where the frost can be kept out by mats or other coverings;—anything short of frost will not hurt them. They are propagated by the side-shoots, which root freely. Seeds may be sown in pans, or wide-mouthed pots, in the spring. They may be potted off, six or eight in a pot, when large enough; and after this, when they have got forward enough, put singly in small pots, to be changed from time to time for larger. The stems require no support, unless the plants are to be carried out, in which case they would require a stake to every stem. The florists' varieties are very numerous. (See *Horticultural Magazine*, Part 27.) *C. integrifolia*, and its varieties, *angustifolia*, and *viscosissima*, are brilliant flower-garden dwarf shrubby plants, bearing large masses of yellow balls. *C. alba* is a neat dwarf shrubby kind, with pure white globular blossoms. They continue in blossom from May almost throughout the summer.

CALENDULA.—A genus of showy composite plants, including greenhouse and hardy annuals, and some few greenhouse shrubby kinds. Of the hardy annuals, *C. officinalis*, the common marigold, and its double variety, are among the most brilliant of all orange-flowered plants; and *C. pluvialis*, the Cape marigold, has white flowers, brown on the outside: they grow about a foot high, and flower freely through the summer. Both succeed in common garden soil, and are readily increased by seeds.

LILIUM (Lily).—Many of these are familiar plants in all gardens. It is a genus of bulbous-rooted perennials, containing many distinct species, nearly, perhaps quite, all of them

perfectly hardy, or sufficiently so to admit of their being cultivated in the open garden. The common lily, *L. candidum*, with white flowers in June; the orange lily, *L. bulbiferum*, with rich orange flowers in June; the Turk's-cap lily, *L. Martagon*, flowering in July, with purple or white varieties; the scarlet Martagon, *L. chalcedonicum*, with rich vermilion blossoms in July; and the tiger lily, *L. tigrinum*, with pale red flowers, spotted with black, produced in July, are among the best of the older sorts, and are all very handsome garden flowers. These merely require to be planted in good garden soil. The most beautiful of all the kinds, however, are the more recently introduced, such as *Lilium speciosum*, or *lancifolium*, and its superb varieties, *punctatum*, *roseum*, *rubrum*, *album*, &c. The plants grow from eighteen inches to three feet high, and bear five or six flowers, (sometimes many more,) some variegated, as if rubies were stuck all over their petals, and their petals were formed of pearl. The varieties are striking, and the flowers are much more noble in size than any of the ordinary lilies. Loam, from rotted turves cut thin and laid together, two-thirds; dung, one-sixth; turfy peat, one-sixth, well incorporated, is a fine compost for them; and the principal thing to look to is the health of the root, the size of the pot, and the drainage. There should be plenty of pot-room. Let them be placed in a cold frame, and be covered in bad or cold weather; they will grow without any difficulty; and as they rise too high for the frame, remove them to the greenhouse, where they will flower in great perfection, and retain their beauty a long time if shaded from the heat of the sun. They will seed freely, and plants are easily raised from seed. The seeds may be placed an inch apart, in pans, and placed in heat. When up, let them be removed to the greenhouse, and be undisturbed two seasons. They may then be placed in sixty-sized pots (three inches across), and grown until they are filled with roots; then removed to larger, until they flower. They are multiplied by offsets, which form round the old roots. These varieties are, however, sufficiently hardy to grow in the open air, if the beds are covered with some light compost in winter; and, grown in the open air, they form fine autumn blooming subjects.—See *Horticultural Magazine*, Part 1.

PHILADELPHUS (Syringa, or Mock Orange).—Confusion sometimes arises from the fact, that the common name of this

shrub, syringa, is the same word as the botanical name of the lilac-tree; and as both are shrubs, often introduced into gardens and shrubberies, from their free-flowering qualities, the confusion is attended with inconvenience. The plants are widely different. The lilac (*Syringa vulgaris*), as is well known, bears numerous flowers, which are small, with a tubular base, and growing in a cluster shaped something like an erect bunch of grapes. The syringa, or mock orange, (*Philadelphus*, different species,) on the other hand, bears its flowers, which are large, and composed of distinct petals, without a tube, either singly or very few together. The leaves of these plants, moreover, have a taste similar to that of cucumbers. They are called mock orange, from the considerable resemblance between their blossoms and those of the orange-tree. Most of the species have a strong, but not very agreeable scent. They are hardy shrubs, requiring no particular culture; they grow in ordinary garden soil, where it is not too damp; and may be increased, either by means of layers, of cuttings, or of suckers. The flowers of all are white, with a bunch of yellow stamens in the centre. *P. coronarius* flowers in May and June, and has strongly-scented flowers; *P. speciosus* blooms in June; *P. Gordonianus* blooms at the end of July: the two last-named have scentless flowers. There are several others in cultivation; but the preceding are selected as being the most distinct and handsome.

IRIS (Flower de Luce).—A very extensive and distinct family of hardy perennials, readily distinguished by their erect sword-shaped leaves, and bearing curiously-formed, and, in most cases, showy flowers. The culture is very simple. The plants prefer a loamy soil, somewhat moist, rather than dry; and they have the best effect when not too frequently disturbed, as they then spread into good-sized patches, and produce a greater abundance of flowers. They propagate extensively, and without the least difficulty, by dividing the plants. There are one or two bulbous-rooted species, the varieties of which are extensively cultivated as florists' flowers;—these are, *I. Xiphium*, and *I. xiphioides*,—the latter commonly called the English, and the former the Spanish iris. The varieties of colour among these bulbous kinds is very great, including white, yellow, blue, purple, and many indescribable tints. These should be planted a foot apart, in a rich bed of loam, dung, and sand, and should be removed only

once in two years: the transplantation should take place in September; they increase by offsets. From the herbaceous kinds, a limited garden may contain the following:—*I. amœna*, purple and white, June; *I. cristata*, blue and yellow, May; *I. pumila*, blue, April and May; *I. florentina*, white, June; *I. subbiflora*, blue, May; *I. sambucina*, purple and white, June. —See *Horticultural Magazine*, Part 14.

PANSY (*Viola tricolor*).—The numerous varieties of this popular flower, frequently called heartsease, originated from the common three-coloured violet. Like the varieties of the pink, these require to be constantly renewed by striking cuttings; for, as may have been observed by many who have grown them, the blooms come smaller and out of character as the plants get larger. It is true, there are more flowers on the plants when they enlarge, but there is a great alteration for the worse in their colours and forms. The ground in which they thrive most is good rich loam. They should be grown in beds six inches apart every way. The side-shoots make the best plants. They should be stripped off when they are two inches long; and they may be put into the ground of the border half their length, and covered with a hand-glass. If the place be shady, so much the less trouble; but if not, the hand-glass must be covered so as to keep off the hot sun. They must be kept well watered. To have the heartsease in perfection, there should be a constant supply of cuttings; and when they are struck, which will be seen by their beginning to grow, they should be very carefully lifted, so as to break none of their fibres, and planted out wherever they are to bloom, whether it be in the borders or in beds. After they are planted out they should be well watered; and choose the evening after sunset for the job of transplanting, because the plants have the benefit of all the night to settle before the sun can hurt them. When the plants get large, cut them down close, and all the shoots that come will make excellent cuttings. The Pansies, which are of all sorts of colours, should be had in bloom all the year, except in winter, a succession of young plants being raised for this purpose. — See *Horticultural Magazine*, Part 18.

BLITUM (Strawberry Blite).—A genus of hardy annuals, having scarlet strawberry-like fruit, and in that state very pretty. The best species are *B. capitatum* and *B. virgatum*, which may be sown in the open air, in common garden soil, in March, and will be ornamental in July.

HOVEA.—A handsome family of greenhouse evergreen shrubs, comprising a considerable number of species, among which there is proportionate variety, in size and habit: they are free-growing subjects. The flowers of all are of some shade of purple or blue, and of the shape of those of the pea, which form is called butterfly-shaped; and hence, papilionaceous, from *papilio*, a name given to butterflies. The most beautiful of the whole family is *Hovea ilicifolia*, the leaves of which are bright, and something like those of a small holly. This family of plants requires a light fresh soil, but not a rich one: one-third loam and two-thirds peat will answer well. The drainage must be good; as much as one-third of the ordinary-formed pots should be filled with crocks, and they should be watered with clean rain-water, if possible. Cuttings will strike in sand upon the ordinary compost; an inch of sand, well saturated with water, should be prepared on a level surface of the compost. The cuttings, which should be the tips of unblooming shoots, should be taken two inches long, the leaves cut off the lower inch, without bruising or touching the bark; and these should be stuck in the sand, and covered with a bell-glass. A slight bottom heat contributes to facilitate the striking. During the time the cuttings are striking, the glass should be taken off daily, and wiped dry inside; and they must on no account lack moisture. When they have begun to grow, the glass may be left off an hour every day. During the whole time, they must be shaded, by putting a paper over the sunny side of the glass. When they have struck, they must be potted into the smallest-sized pots (three-inch, or sixties), and kept the same depth that they were in the cutting-pot;—on no account must they be sunk deeper. They may now be placed near the glass in the greenhouse, merely protected from the scorching mid-day sun, and watered daily as to their moisture, which must be on no account neglected. Their tops may be pinched out as soon as they are fairly established, and this will encourage lateral shoots. As soon as the pots fill with roots, let them be changed for a size larger, keeping to the same compost, and taking care not to bruise the fibres which are exposed outside the ball of earth. They may be allowed as much air as possible in mild weather; and if any of the lateral shoots are growing too vigorously, let them be topped, for, excepting *H. ilicifolia*, they all incline to make long shoots. In this way may the plants be grown from pot to pot, until they form, first, handsome little, and ulti-

mately handsome large plants. Those who are anxious to form large specimens in a short time, will pick off the buds of flowers while the plants are small. It is far better to let them take their natural chance, and bloom in season. When the flowers decay, by all means remove the decaying flowers; because the formation of seed-pods would retard the growth, and prevent them from growing handsome. To raise them from seed, sow in pans, or wide-mouthed pots, and place them in the greenhouse, where, as soon as they are up, they must be kept clear of weeds, and be occasionally watered, until they are large enough to prick out in other pans, an inch and a half apart. Here they may grow till they are large enough to pot singly, when they must be treated exactly like cuttings. The *Hovea ilicifolia* has purple flowers. Other handsome kinds are *H. Celsii*, blue; *H. pungens*, blue; and *H. splendens*, blue: they bloom in April and May.—See *Horticultural Magazine*, Part 36.

MATHIOLA (Stock).—This is a favourite genus of hardy plants, of which one familiar species, *M. annua*, the ten-weeks stock, is an annual, flowering in about ten weeks after sowing; another, *M. simplicicaulis*, the Brompton, or giant stock, is a biennial, usually flowering about July; and *M. incana*, the queen stock, is a sub-shrubby kind, though best treated as a biennial. It is difficult to set bounds to varieties, when the florist once takes a subject in hand, with the view of improving it; and though we may find, in botanical works, a few different species of a flower or plant newly introduced, the practical gardener who perseveres in raising and improving, soon knocks all these fanciful distinctions on the head, to make way for differences that all men can understand. The stock, one of the sweetest and gayest of annuals and biennials, is now reduced to classes that may be thus defined:—1st, Ordinary ten-weeks stocks, of twenty or thirty different colours, which the German seed-growers save distinct. Ten-weeks stock with smooth green or wall-flower leaves, many varieties of colour. In the course of raising these in great variety, some have been found to bloom much later than others, and these may be had separately. 2d. The biennial stock, or those sown one year to bloom the next, which have about as many distinctions as the former, as regards habit, but not in respect to colour; of these, the Brompton stock, the queen stock and the giant stock, are well-known distinctions; and

there have been some remarkably fine, that florists have considered distinct enough to name and sell the seeds of separately. When we once obtain possession of a good strain of stock, and get but a few single ones out of a great number, there is not much difficulty in keeping it; for, in the habit of the stock, we possess a strong disposition to go double; and the few single ones which escape, yield seed equally so disposed; but remove a single stock from hundreds of others equally single, and which exhibit no disposition to go double, and that single one would not yield one more double variety for being planted among a thousand double ones. So that the common advice to take seed from such single flowering plants as grow near many double ones, is good for nothing; for unless the single ones that grow near many double ones are of the same seed as the double ones, it is useless; or, in other words, the planting of a thousand double stocks round a single one does not change the nature of its seed. Sow the annual stocks in a frame; and when up, give plenty of air, and no more water than is just enough to keep them from flagging; when they have six good leaves, plant them out in a bed of rich soil, or pot them off in rich soil, and give plenty of water until they bloom. Brompton, or two-year stocks, may be sown in May, thinly in the open ground, and when large enough planted out, if in beds, a foot apart; they will bloom the following June. Cuttings may be struck from these two-year stocks, when they are fine enough to be worth it; they may be struck under a glass in the common borders, like wall-flowers. *M. tristis*, the night-smelling stock, is a greenhouse shrub, flowering in June; and though not showy, the flowers being of a dull livid colour, yet it is desirable on account of its powerful vespertine fragrance; this grows in a light sandy loamy compost, and is propagated by cuttings.

LESCHENAULTIA.—A genus of small-growing evergreen greenhouse shrubs, of a very ornamental character. Until very lately, *L. formosa* and *L. oblata* were the only two popular varieties of this very showy and very common plant, which may have been recognised of a small size in every market for plants, and in all the common nurseries round London. It is a dwarf plant with small heath-like leaves, bearing a ragged scarlet or orange flower in great abundance, growing in equal parts loam from turves and peat earth, with

sand enough to render it pervious to water. Within the last few years we have had some fine additions to this family; these have been found at first to have every appearance of being of a more lanky habit, and much less abundant bloomers than the old familiar kinds. A good deal of this appearance is, however, found to be owing to the pains which cultivators take to drive their novelties into bloom, and the consequent rapidity with which they are grown. When cultivators shall content themselves with loam, peat, and sand, instead of exciting compost, these plants will not be so tall, and the habit far better; and even this habit may be still checked by stopping the ends of the principal shoots, thus causing them to become more bushy. To propagate them, strike cuttings in sand under a bell-glass with slight bottom heat; pot them off as soon as they are well rooted, and grow them in the size sixty, until they are filled with roots, and the plants will bloom before shifting. The taller kinds must have the ends pinched off directly they fairly start for growth; this will induce side-growth. In the summer months they must have all the air you can give; shift them from one sized pot to another, until they are as large as you require them, always growing them in the winter months close to the glass. *L. formosa* has brilliant orange-scarlet flowers. *L. biloba* has blue flowers, very rich. *L. splendens* is a showy scarlet flowered species. All these bloom in June, or earlier or later according to their management. The flowers of *L. arcuata*, produced a month or two later, are yellow and red.

TRILLIUM.—A curious family of very small plants. The stem has three leaves and the flower three petals; these therefore, considering the diminutive size of the whole structure, scarcely six inches in height, and the singularity of their form, may be said to be more curious than beautiful, but they are interesting. Though hardy, they require pot culture to be seen to advantage; they are tuberous-rooted perennials, and propagate but slowly by dividing the roots, but they may be raised from seed, which is inclosed in a berry. This may be sown in pans, and be raised in a hot-bed, by degrees inured to cooler treatment, and pricked out, three or four in a pot, to grow, and lastly potted singly into sixty-sized pots. There are many shades or colours among them, red, white, purple, brown, green, and a mixture. All those curious in plants should grow them, though like many other curious plants

they are greatly neglected. They flower very early in spring, and grow best in peat soil.

ASTER (Star-wort).—There are hundreds of perennial asters, but those in general cultivation are the numerous varieties known as Michaelmas daisies, which only require to be planted, and will stand half a century, spreading, and seeming in nowise the worse for neglect; indeed a great mass of flowers looks much better than a small quantity, and the plants require, in reality, no culture. They grow in any common garden soil. Some of the best of these perennial kinds are *A. Amellus, alpinus, Novæ-Angliæ, pulcherrimus,* and *bessarabicus;* but the variety is almost endless. *Aster tenellus,* properly a greenhouse biennial, forms a very pretty subject grown as a half-hardy annual; its flowers are bluish-lilac, and it grows about six inches high. It is increased by seeds; the perennial kinds by divisions. For the China aster, see *Callistephus.*

CALLISTEPHUS (China Aster).—*C. chinensis,* formerly called *Aster chinensis,* and subsequently *Callistemma hortense,* is the well-known China aster, an annual growing about a foot high, and having large composite flowers. The China and German asters are favourite border annuals, with flowers single, semidouble, and double, self-colours and stripes, reds, pinks, dark and light purples, striped in all ways. They form a varied and striking feature towards the end of the summer in all the places where they are introduced. To bring them in perfection, half well decomposed dung and half loam would be nothing too rich, but generally, as these are planted about the borders, they have to take their chance. Sow them in a hot-bed in February or March; plant them out in May. If you have a bed of them, let the bed be supplied with a good dressing of dung; plant them a foot apart every way; keep them clear of weeds, and if there be any very sultry weather, let them have plenty of water. They will come much larger and finer for the dressing of dung. Planted about the borders, wherever there happens to be room, they add greatly to the beauty of the garden, because the colours are so varied, and they appear to be in the way of nothing. Mark the best for seed.

ACONITUM (Monkshood).—Few persons are unacquainted with this family; the common and the variegated monkshood are not uncommon in the English gardens, but of these the

variegated is alone worth a place. Considering that the whole family are highly poisonous, they should be carefully managed. *A. japonicum* is a fine dwarf blue-flowered kind; and in *A. variegatum* we have a dwarf shrubby showy object, the bright blue and white flowers being abundant, and entitling it to a conspicuous place in the herbaceous border. It is propagated by parting the roots, which is best done after the bloom declines in the autumn; divide the root into as many pieces as there are hearts to the plant, with a portion of root to each, and plant them in nursery beds about a foot apart; but there is no need of parting these for several years unless you want the room, for the larger the plant spreads the more showy it is. About once in three or four years is enough to disturb the plant, and even then if it be too large you may chop some off all round to lessen it, without digging the main plant up. They grow in common soil.

TROPÆOLUM (Nasturtium, or Indian Cress).—A genus of soft-stemmed climbing herbs, some of which are annual, and others perennial, having tuberous roots. *Tropæolum majus* is the common nasturtium, the seeds of which are gathered for pickling, and is sown on the open ground, where it is to bloom and bear through the summer. It requires neither care nor attention. *T. m. atrosanguineum* is the dark variety, and *T. m. flore pleno* is the double orange-coloured variety; the dark variety grows out-of-doors like the common one, and the double is a greenhouse plant like many of the others. *T. minus* is a smaller but very pretty annual kind; and what is called the double scarlet nasturtium, is the double-flowered variety of this species, *T. minus flore pleno*. Both *T. majus* and *T. minus* are free-flowering species, blossoming throughout the summer, till cut off by frost; the first a strong growing climber, the last less rambling. The leading fancy kinds which gardeners exercise their skill to grow in perfection are, *T. tricolor* and its varieties, *T. pentaphyllum*, *T. brachyceras*, *T. azureum*. These are all climbing plants, which can only be grown upon trellises, or with adequate support. The tubers, or the seed, or the cuttings, as the case may be, must be placed in pots with good loam, dung, and peat, in a hot-bed or the stove, to start them fairly, but they may then be placed in the greenhouse in the full light, with a glass over them for a day or two, that the change may not be too great. As they send up their thread-like shoots, provision must be made for their support. The various fanciful articles of wire

work now made for the purpose afford great choice; but patterns for these things on a rational plan have been published in the *Annals of Horticulture*, to which the cultivator of climbing plants should refer before any adoption of the present frames or trellis. The plants will require air and a moderate supply of water, and after the plants have fairly began to grow they should be placed in the sized pot they are to fill, not less than a twenty-four, and if the bulb is a strong one, a pot ten or twelve inches across will not be too large. The only varieties we recommend for this culture are *T. tricolor*, *T. azureum*, and *T. brachyceras*, all small and delicate growers, with small cut leaves, and all having showy but small flowers, excessively unlike each other; the first, scarlet and black, the next blue, and the last bright yellow. Nor are the forms any more alike than the colours; the first is like a horn, the second a plain round flower as large as a shilling, the third a small narrow-petalled blossom. These are very striking plants, and deserve a place in every collection however choice. *T. pentaphyllum* is of the form of *T. tricolor*, but coarser, and the colours heavy and dull. The trellises to support them must be ample and alike, and when the plants are well matched for strength, a gardener can hardly show a better family for the exhibition of his skill. It must be kept in mind, that they all require plenty of air, moderate but careful watering, plenty of drainage, and watchfulness, as the shoots grow, to place them as they should grow upon the trellis; otherwise shoots will twine round each other, instead of distributing themselves properly on the wire-work, and when they once get matted it is very difficult to untwine and release them. Those named below are the best of the more recent additions to the genus:—*T. Lobbianum*, a strong growing kind, approaching the common sort in size and habit, and having rich orange-scarlet blossoms of the size, and nearly the shape, of those of the scarlet geranium; this kind blooms readily throughout the winter, and the plant wants frequent renewal from seed. *T. speciosum*, of the habit of *T. pentaphyllum*, with rich crimson flowers of a very distinct and peculiar form. *T. umbellatum* has its tube-shaped flowers of orange and scarlet in umbels, and bears leaves lobed like those of the ivy. These three are greenhouse perennials. The general blooming season of the genus is from June to August, though the exact season is dependent on the time when their growth is first excited.—See *Horticultural Magazine*, Part 2.

ROSA (Rose).—The varieties, colours, and habits of the rose are almost endless; and they are grown either on their own roots, or budded on stocks—that is, stems—of the common dog-rose. When we see the dog-rose grow luxuriantly in a dry bank, among brambles and other plants that seem to choke them, it is hardly reconcilable with the popular notion, that roses require very rich soil; and if one of these briers or dog-roses be budded as it stands in the hedges, the variety so budded on it will grow so strong that we are bound to consider a rose will grow in anything. There is, however, one consideration which may account for the almost rampant growth of hedge-roses—the roots run to an immense distance and proceed onwards till they reach the soil that suits them. The rose will grow well in any soil that will grow a cabbage well. In planting roses cut all the ragged and damaged parts of the root clean with a sharp knife; and if any part of the root is bruised remove it; plant these the same depth that they have been growing before; prune out all the thin twigs or shoots from the head or bush; cut out all the branches which are in the way of others; cut back all the last year's wood to three eyes, and always make the cut sloping and just above a bud. When they are growing rub off the buds that are growing inward so as to crowd the head. It is a good plan to prune roses at two if not three seasons, for on the pruning the season of bloom depends. The early pruned ones grow as soon as the unpruned; the latter push the eyes towards the end, while the eyes next the stem do not push at all; by pruning off all the grown eyes, the ungrown ones have to begin their growth, when the pruned bushes have grown for a month.—See *Horticultural Magazine*, Part 6.

RESEDA (Mignonette). — The botanical name of the mignonette is *Reseda odorata.* This universally admired annual is one of the most controllable of all plants; no matter when it is sown or where—in the smoky atmosphere of London, the free air of the suburban villa, the green boxes that stand outside the window, the border of the pavement, the pent-up pots in the London markets—it is obedient; sow the seeds, and the plant, bloom, and seed soon reward us. It may be sown four times a-year with advantage in boxes, pans, or pots. It may be planted out anywhere three or four in a patch, or in a pot. It may be sown in pots and be thinned, the plants taken out being used to transplant somewhere else;

if in winter, they must be kept in the greenhouse, or pits, or frames and glasses; if in summer, they may be in the open air. No plant will bear rougher treatment; none sooner show when they have removed to better soil. Mignonette is nothing to look at except by means of a magnifying glass; it makes no show, but its scent, which has no superior among all the fragrant flowers of the garden, will always secure for it a place in the most *recherché* collections. Scatter the seed upon the borders; let it come up like a weed; it is acceptable anywhere—everywhere. If there are more plants in a place than you want, you can remove the surplus and plant them anywhere about the garden, where there happens to be none, and there is room for a few plants. It is so nearly hardy, that we have seen the old plants and young seedlings from the self-sown seed, actually standing side by side after a mild winter. Mignonette, although an annual, can be struck from cuttings, which in their turn do very well, and almost assimilate the plant to a perennial; they bloom more dwarf under these circumstances, but they are not the worse for that; and as to foliage, generally speaking, that is not much to look at after the plant begins to bloom, and does not improve the second year. Large quantities of mignonette are grown for the market; this is generally sown in pots, half-a-dozen seeds sprinkled in each pot, and all of them submitted to the common garden frames with lights; they are sown about September, and they have all the air that can be given all the winter. Of course they keep growing, except in frosty weather, and in the spring months rapidly come forward. These plants show bloom very early, before they have grown much, and are in flower until others sown in February and March come in to succeed them. The mignonette may be kept in bloom all the year round by a succession of sowings. A sowing in July brings plants that flower from November till March; sow the first week in September to take up the blooming from March to July, and the spring sown ones will do the rest. No frost must reach the pots in the winter time, and the earth must be occasionally stirred upon the surface in the pots to let in the air.

MAGNOLIA.—This is a fine family of shrubs and small trees, some among the handsomest of hardy evergreens, others deciduous, and all beautiful as flowering plants. The soil for these plants should be deep and good, that is, of free, open texture, and neither subject to parching or liable to excessive

wet at any season. All the magnolias grow very finely in peat earth, but this is not essential to them. They are greatly benefitted, however, when planted in a young state, by having a bushel or so of good compost placed about their roots; this compost may be of equal parts light loam and peat, both of turfy texture. Layering is the most usual mode of propagating the Magnolia, the layers being put down in spring. Many of the species are not well suited for transplanting after the first stages of their growth, unless they are kept in pots; and when this is the case the roots must be uncoiled and spread out in straight lines, when they are planted. The arboreous species, as *Magnolia glauca, tripetala*, and some others, are only suited for large gardens. *M. grandiflora*, and its varieties, are, on the other hand, evergreen trees, which should find a place in every garden; they are usually trained against walls, which they cover with a mantle of large glossy laurel-like leaves, decorated from June to September with large white fragrant cup-shaped blossoms, looking like large eggs when in the bud state. Wherever there is a shrubbery or a clump of peat earth shrubs, one or two of the hardy deciduous species should also be grown. Those most worthy of culture are *M. conspicua*, which has large white fragrant blossoms in the spring months; a variety of it named *Soulangeana*, in which the blossoms are tinged with purple; and *M. purpurea*, a smaller plant, flowering from March to May, the blossoms being purple outside and white within. A small evergreen species named *M. fuscata*, something like a camellia in its foliage, is a greenhouse plant, and in May bears blossoms, exquisitely fragrant though not very conspicuous.

RANUNCULUS (Crow-foot).—Besides the common crow-foot, the buttercups of the meadows, and several other hardy herbaceous perennials, some of which are very ornamental in gardens, this family comprises the florists' ranunculuses, which have sprung from *R. asiaticus*. These beautiful flowers have puzzled florists a good deal, and many have given up their cultivation in despair. There is, however, one compost which they will thrive in, and it is worth while to be at some pains to get it. Cut turves from a good pasture three inches thick; pile these on one another solid. At the end of the first year let a man with a sharp spade slice these down in thin slices so as to crumble the mass as it falls; set a boy or two to move this further on and pick out all the wire-worms,

and grubs, and earwigs, and any other living pest that they can discover; and this done, let it be packed into a heap again, and remain another year, by which time all the vegetation will have resolved itself into that kind of mould, which if separate we should call vegetable mould; at the end of the second year you may set the boys to work to move all of it a yard or two, and look it completely through for any remaining intruders. This soil, cleared of vermin, will grow the ranunculus well. Exciting composts and various stimulants are used by some for the sake of getting them a little larger, but there is always the risk of doing mischief, and hundreds who have grown upon the stimulating plan, have occasionally been visited by disease and lost many of their tubers. In this loam, enriched as it is by vegetable mould, plant ranunculuses about the middle of February, two inches below the surface; press the earth close about them. When they come up, keep them clear of weeds, and as they break the ground loose about them, crumble it and keep it pressed close round the roots. Water them freely in hot weather, and the instant they show the colour of their blooms keep the sun off; they will very well reward you for the trouble. When the flowers are over and the leaves are turning yellow, take up the tubers, and keep them out of ground till planting time. Common sorts are planted in the autumn, but the best in February. They may be raised from seeds in the same way as anemones. Among the hardy perennials which are desirable in the flower borders, are *R. aconitifolius*, white, May; *R. alpestris*, white, July; *R. gramineus*, yellow, May; and the double bachelors' buttons.—See *Horticultural Magazine*, Part 28.

ROBINIA.—This genus of hardy trees includes the Locust tree (*R. pseud.-Acacia*), commonly called the Acacia, so much recommended by Cobbett as a timber. It is chiefly interesting in gardens as containing a beautiful small flowering tree, called the Rose-Acacia (*R. hispida*). This beautiful tree, and some of its varieties, bear immense masses of butterfly-shaped blossoms of a pink or red colour, which open in June and July. It will grow in ordinary soil; and is increased by grafting or budding on the common kind.

DIANTHUS (Pink).—There are many species and varieties of this highly ornamental family of hardy perennials, besides the popular carnation and picotee (*D. Caryophyllus*), the pink (*D. plumarius*), and the Sweet-William (*D. barbatus*).

They are eminently suited for rock-work, and are almost all alike desirable in such a situation. The Indian pink (*D. chinensis*), is a richly-coloured hardy biennial, which, however, does well treated as an annual, flowering about July. The fancy race of pinks of the present day is grown extensively, and requires every year to be struck from pipings, which is the grass that shoots out round the foot of the stem; these are taken off at blooming time, or rather after, and each shoot is cut up to a joint, and the lower leaves removed for half-an-inch; a bed is made of rich stuff, loam and dung; these pipings or shoots are inserted not more than an inch apart, while the ground is made very wet, and are then covered with a hand-glass, which is not disturbed for some days, and then only to water them if they require it. A good deal can be done towards moistening them, by watering outside the glass. In three weeks they will have struck root, and the glass may be taken away, that they may have the benefit of the open air; and in a few more days they may be taken up, and planted out in beds four feet wide; six inches apart every way will be the proper distance for the plants, and the soil in which they grow should be the loam from rotted turves. If you are obliged to use ordinary garden soil, fork in a good dressing of dung before you plant out the pinks. In May, when they send up their bloom stalks, remove all but the best from each plant, and as these advance take off all the buds but two or three from each stalk; when the buds have swelled almost to bursting, but not quite, tie them fast round the middle with a piece of bass matting, and tear the bud down at each division to the tie. The blooms will be fine, and worth all the trouble you have taken. After the bloom is over, the grass will be ready to strike for the next year. The best double fancy pinks do not seed freely, but they do occasionally afford us a pod. To raise them from seed the sowing should be in wide-mouthed pots or seed-pans, not too thick; these may be placed in a cold frame, and if not too crowded when they come up, they may remain there till they are large enough to plant out, in like manner with the approved pipings or cuttings. The treatment is to be the same throughout; and, as they bloom, throw away instantly every one that is semi-double or single, and all that are not as good, or better, than we have. Confine the striking of the cuttings to the grass of the very few seedlings that are worth tying again. The

flowers of seedlings should be examined daily, almost hourly, to be quick upon those that are good for nothing, for they ought not to be open an hour, as single and semi-double kinds only spoil the seed of the better sorts that might give us something better. It is not expected to get one improved variety out of fifty seedlings, or even a larger number.—See *Horticultural Magazine*, Part 30.

ZINNIA.—A genus of Mexican annuals, growing about one foot six inches high, bearing roundish composite flowers of many different colours, seedling varieties having become numerous. The plant is what may be termed coarse, and is better in moderate than in rich soil; the seed may be sown in the open ground, or in heat, according to the time it is desired to be in flower. When large enough it may be planted out at once into beds a foot apart, or in the border three in a patch. When seed has been saved from a single plant, and none other has been near, the plants have come pretty constant to the parent; but, generally speaking, in the seed that is purchased, we obtain all the colours from scarlet to light pink and to dark crimson, and all the shades from dark chocolate to light purple and lilac. It is a difficult matter to produce, year after year, anything like constancy in annuals; for the only way is to destroy all others that can cross the seed, or to isolate those for seeding, so that nothing can reach them. Muslin bags have been tried with some effect, but it must be done very early. The most ornamental species is *Z. elegans*, which has sported into a variety of colours; they flower in July and August. This species grows best in peat soil, and in a cool situation.

ERICA (Heath).—This is a very extensive genus of small evergreen shrubs, chiefly natives of the Cape of Good Hope, and requiring the protection of a greenhouse, or dry frame, in this country. The growth is as simple as it is singular. Anything short of frost is not too cold for them; no wind is too high for them; hardly any soil is too poor for them; but forty-eight hours neglect of watering, when they want it, destroys them. They strike from cuttings under a bell-glass, in a top layer of half-an-inch of sand, drained in a pot otherwise filled with soil, the bottom of the cuttings touching the soil beneath the sand. When struck, they require potting in a soil composed of turfy peat from a common, rubbed through a very coarse sieve, three parts; sandy loam, or sand and loam, one

part, well mixed, and allowed to lie together some time before use. Put the cutting no deeper in the pot than it was when struck; shift it when its roots fill the pot; water always with rain-water, or, for want of that, soft river-water. Give every plant plenty of room, quite as much room all round its branches as it occupies. Every time you shift, keep the collar of the plant quite on the surface—rather raise it higher than sink it. A common frame and light, placed on a hard dry bottom, will be the best possible contrivance, for they must be kept from the damp, and daily examined with respect to their want of water; they ought not to be too wet, but too dry is nearly certain destruction. The larger the plants grow the larger must be the pots, and in shifting you must be guided by the filling of the other pots with roots. All the kinds are beautiful, and the varieties are so numerous that it would be useless to name any few as preferable to the rest; they bloom at all seasons of the year.

GILIA.—A favourite class of annuals, with small cup-like flowers, very simple, blooming abundantly in June with other annuals. There are several varieties, but little to distinguish them one from the other but the different shades of colour. *G. tricolor*, the favourite one, has a spot of black in it that justifies the name of tricolor, though neither the dull blue nor orange are very striking; the plant may be called neat, dwarf, and quiet. It is as hardy as most of the annuals, and may be sown in March, where it is to bloom, and not too crowded. It blooms from June onwards in succession. Among the family may be found blue, white, rosy, and those we have described; and the general height is from one to two feet. It is not sufficiently bright or striking to be effective in geometrical gardens, and therefore is not so great a favourite. The white-flowered variety of *G. tricolor*, has the same black and orange centre as the other. *G. achilleæfolia* has the flowers entirely dark blue, but is otherwise similar to *G. tricolor*.

GLOXINIA.—This is a genus of stove plants, with rich velvety leaves, growing very dwarf, and flowering with large bell-like or tubular flowers, wide at the lip, and showing the entire throat. There are various colours, and by crossing, the varieties increase every season. The principal colours were for some time a rich purple or dark blue, and a white, with a dark streak. Since the introduction of *G. rubra*, a crimson one, the colours have increased wonderfully, and we

have now all shades of blues, crimsons, pinks, mottled, and white. They have bulbous roots, a good deal like gesneras, which when imported only require to be potted in loam, dung, and turfy peat, in equal portions, and in pots no larger than the bulb actually requires. As the plants grow, the roots fill the pots, which must be changed, and the plants must be grown in the strong light of the front shelves or tables of the stove, to prevent their drawing up. They want considerable moisture while they are growing. After their bloom has declined, they want no more water, but may be put back on the shelves where they will be least disturbed until growing time again, which will be seen by the starting of the buds on the top of the bulbs. To propagate, you may take the shoots from the bulb when they are an inch and a half long, and strike them in small pots under a bell-glass, when they may be potted off, grown, and shifted till they bloom ; or plants may be raised from the leaves planted as cuttings. To raise from seed sow in March ; keep the pots in the stove till the plants are up ; when large enough they may be pricked out, three or four in a three-inch pot, and in due time pot them singly, and treat them as already recommended for older plants. A selection of distinct kinds is furnished by the following :— *G. speciosa*, purple ; *G. s. Cartoni*, pink ; *G. s. Fyfiana*, white and purple ; *G. pallidiflora*, purple. The blooming season is from July to September.

GESNERA.—This is a showy genus of stove plants, with bulbous roots, throwing up shrubby branching stems, with spikes of tubular flowers, very brilliant, but somewhat fragile, and varying in different sorts from yellow to bright scarlet. There are many distinct species, but the leading characters are alike ; the most remarkable difference is, that some kinds are shrubby. Loam, dung, and peat make an excellent compost for them. They must be potted in a size of pot suited to the bulb, and placed in the stove, where they must be moistened as soon as they begin to grow, and be grown near the light. As soon as the pot is filled by the fibres of the plant, and they begin to grow round the side of the pot, the plant must be shifted to a larger size, be liberally supplied with water, and continue in the lightest part of the stove until the buds show for bloom. The plants must then be shaded from the direct rays, but not put in the dark, for the effect of that would be to make them draw, and the nature of the plants

is to grow quite tall enough, when all the pains are taken to keep them dwarf. When they have done flowering, no more water is to be given. The plants may be placed out of the way to rest, and not noticed again until the shoots make their appearance, when they may be examined, and if the pots are full of roots, change them for larger. If you desire to propagate, take off the shoots at two inches long, and strike them in sand or mould covered with a hand-glass. Pot them off, and shift as before directed. This treatment will be proper for the bulbous-rooted kinds, of which *G. bulbosa*, scarlet, June; *G. elliptica lutea*, yellow, May; and *G. zebrina*, scarlet and yellow, October, are desirable, even in small collections. The shrubby kinds are raised from cuttings, which are shifted on when rooted, so as to form bushy plants, but otherwise treated like the rest, except as to drying them when past blooming. Of this habit *G. elongata*, scarlet, September, and *G. hondensis*, red and yellow, May, are distinct and pretty kinds.

NEMOPHILA.—A genus of Californian hardy annuals, of which the best is *N. insignis*, which has a small convolvulus-looking bloom (only formed of several petals), of very bright blue, with a very white eye, covering the plant in its season, and not exceeding six or eight inches in its height. On this account it is a most beautiful plant for clumps and beds which form parts of figures, forming a mass of blue and white, bright in colour, and not much higher from the ground than an embossed carpet. It may be sown in pots in the autumn, or potted singly after sowing in a patch. It may be planted out in May, and will bloom directly, while the spring-sown will just be ready in due time to furnish the bloom just as that of the early ones decline. There are not less than a dozen seedling varieties, and may hereafter be a dozen more, if every seedling that is different from the rest be kept separate. The true *N. insignis* is, however, the most beautiful; spotted or striped varieties will be far less valuable, because less brilliant. It is pretty hardy, for self-sown plants stand over the winter. Another Californian species is the *N. maculata*, which has white blossoms, having a large purple blotch on each of its petals; in other respects it resembles the other. There are three herbaceous perennials, *N. paniculata*, *N. parviflora*, *N. phacelioides*, all having blue flowers, and blooming in May and June; they are introduced from North America. There are of the annuals, besides *insignis* and *macu-*

lata, *N. aurita*, purple, and *N. atomaria*, white, covered with little dark dots; and the seed catalogues furnish other varieties: for instance, there is *grandiflora*, a larger flowered blue; *discoidalis*, dark chocolate, with a narrow belt of white; *atomaria azurea*, spotted blue, and others which we regard only as seedling varieties; and except, perhaps, *grandiflora*, to those who prefer large flowers, not so good as *N. insignis*. For beds, this plant should be put out four inches apart, when it will present a dense mass of flowers. The soil should not be too rich, for if the plant grows rank it becomes straggling, and unable to hold up its own weight. There is no annual so useful if kept in sixty-sized pots, or even smaller, and one in a pot, for it makes a bright speck in any vacant place in a border or bed, and is never out of place.

HIBISCUS.—An extensive family of mallow-like plants. *H. Africanus* and *H. Africanus major* are two popular annuals, hardy enough to sow in the open air in spring, and flower during the summer, bearing cream-coloured flowers, with a black centre. They will grow in the common border, with the ordinary garden soil, and merely require to be thinned properly after they are up; and the plants taken up to thin the others, may be planted out carefully in other places. The Hibiscus is, however, an extensive genus, and comprises many stove and greenhouse species, of all colours among reds, browns, and yellows. *H. Manihot* has a large sulphur-coloured flower, as large as a small plate, opening very flat, and having a very black eye or centre; it blooms in July. *H. rosa-sinensis* and its varieties are stove plants, and comprise red, yellow, flesh-colour, and striped; they bloom in the latter part of summer. *H. syriacus* and its varieties are hardy deciduous plants, flowering in August. All the family are esteemed, but not many of them are in general cultivation. The hardy herbaceous sorts, such as *H. aquaticus*, white; *incanus*, yellow; *moscheutos*, white and pink; *palustris*, pink; *pentacarpos*, light red; *roseus*, pink; and *virginicus*, red, are pretty. They only want planting in the common borders, and will grow, and spread, and do well. Most of the sorts seed freely; the seeds come up and the plants do well, and may be planted out or potted off according to their intended station.

LEPTOSIPHON.—This is a small flowering dwarf annual, of which there are two or three varieties, introduced from California in 1833. Its flowers are of a bluish white, or very light

purple, and white, very abundant, and nearly covering the plant; a very pretty object in clumps and beds, but not very long lived; the bloom looks untidy as soon as it begins to decline. The seeds may be sown in the open air in March or April, and should be sown thinly, because they must be thinned to bloom well, if they are ever so thickly on the ground, and of course this involves a waste of seed. They will grow in any poor or other ground, and do as well as any of the annuals in the common borders. In beds of geometrical or other formed gardens where they have to show a mass of flowers, they should be thinned to about two inches apart, and very even all over the space, because in beds which form parts of a connected figure, there must not be vacancies, nor must the plants be too much drawn by being close together. In patches, the least quantity is about what could be sown in a pot; and many adopt a very good plan in sowing annuals in pots, and bedding them out afterwards, for the sake of having the patches uniform. *L. androsaceus*, *L. a. albus*, and *L. densiflorus*, are the only three distinctions that we have common; but there are four others mentioned, namely, *L. grandiflorus*, blue and gold; *luteus*, deep yellow; *pallidus*, pale yellow; and *parviflorus*, yellow; all hardy.

IXIA.—In this very beautiful and interesting family there is a great diversity of colour. They are bulbous-rooted plants, growing from a few inches to a couple of feet in height, and throwing up a small bunch of brilliant flowers. Among the different colours we may mention as distinct, orange, blue, yellow, pink, red, variegated, flesh-colour, white, purple, and yellow, in many shades, and one of the most superb greens that can be found in the floral world. They delight in sandy loam, decomposed dung, and peat earth in equal quantities; and a south border made up of this compost will bloom them in high perfection; but they are handsome pot-plants, and a collection of them so grown is a pretty sight. Few flowers so well deserve attention, yet few are so little known and appreciated. They should be potted in October, and placed in a garden-frame, where they must be protected against frost and excess of wet. They may be placed in the greenhouse as soon as they indicate bloom, and will flower in perfection. Three or four bulbs in a pot are sufficient, and the plants in each pot should be confined to one sort, as a little difference in the time of flowering of two different kinds would spoil the effect.

Seeds may be sown very thinly in a pan, and when the foliage dies the diminutive bulbs may be immediately transferred to other pans or pots, and put in an inch and a half apart, or three or four in a small pot, and continued growing until they flower. The different varieties multiply by offsets from the bulbs. Any of the species are pretty and worth growing, but the following are perhaps the best, either as respects their distinctness or their freedom in producing blossoms :—*I. amœna*, red ; *I. conica*, orange ; *I. flexuosa*, pink ; *I. monadelpha*, blue ; *I. scillaris*, variegated; *I. viridiflora*, pale tea-green and black. The flowering season is from April to June. —See *Horticultural Magazine*, Part 37.

COLLINSIA.—A genus of very pretty dwarf annual plants, natives of California and other parts of North America. They all require similar culture. *C. bicolor* is a very showy plant, growing erect, from nine inches to a foot high (sometimes more), and bearing a spike of greater or less length of pretty pale purple or lilac, and white two-lipped flowers, well worth notice in the most finished gardens. It looks well in patches, and not worse in pots; and in clumps, where it is to be conspicuous in three or four parts of a figure, it is very imposing. The culture is simple. Eight or ten plants in a patch is sufficient for the borders, and when they are to form a mass of flowers, as in the parts of a geometrical garden, they ought to be not more than three inches apart. For this purpose it is the best way to sow thinly, and when they are up and you are about weeding them, to thin the plants, so that they may not be nearer than say two inches, nor further than three inches from each other ; this gives the appearance of a complete mass of flowers when the spikes of bloom rise. Sowing in pots should be begun in March, and eight or ten plants are enough for a pot. These should be placed in a greenhouse, and as they grow, if any two should be too close together, remove one. Where patches of this flower are to be at certain distances round borders, the balls may be turned out from the pots as soon as the weather will be secure. There is no real danger of frost after the middle of May, and not much after the first week, so that any grown in pots may be turned out full grown, and will come into bloom very early, while others sown in the border in April, and only growing in the middle of May, will follow with their flowers in a sort of second season. *C. grandiflora* is a still dwarfer subject, and

equally pretty, though very different from *C. bicolor;* it grows six inches high, spreading on the ground instead of growing erect, and bearing flowers half the size of those of *C. bicolor,* but the colours are rosy purple and bright blue. There are some others, but these two are the best at present known.

RONDELETIA.—A family of stove evergreen shrubs of pretty habit, and well worth cultivating. *R. speciosa* has long been a favourite in the stove; it is a handsome growing plant that may be rendered very bushy by culture, and this is the best plan to grow it on, because the flowers come at the ends of all the shoots; the bunches or panicles of flowers look very bright, for the individual bloom is red, with an orange-coloured eye, which looks exceedingly rich. Cuttings should be taken when the plant is in flower from all those shoots that have no bloom; they strike very readily in sand upon the ordinary compost. The cuttings should not be more than two inches long, one inch of which should be in the sand and the other above; after watering them in, cover with a bell-glass, and place them in slight bottom heat. Wipe the glasses daily, and attend well to moisture. When they have struck, pot them off singly in the smallest sized pots (sixties) in a compost of half loam, a quarter peat and a quarter sand and dung together. These may be placed in the stove directly they are watered to get the earth well settled; pinch off the tops directly they begin to grow, and then lateral shoots will soon come; and if these get too vigorous check them also, by which the bushy habit will be encouraged. When you have secured this as far as you wish, grow the plant right on, and all the ends of the shoots will give trusses or panicles of flowers. When the bloom begins to open it should be put into the part of the hot-house that is coolest, preparatory to removal to the conservatory or other place which it is intended to decorate or set off with its flowers. The flowering season is July. There is a variety called *R. speciosa major,* which is something the handsomest. *R. odorata,* which bears red blossoms in July, is also a pretty plant.

ERYSIMUM (Hedge Mustard).—A genus of hardy plants consisting for the most part of biennials, those which are cultivated being treated as annuals. The majority are uninteresting objects. *E. Perofskianum* is, however, a very brilliant flowered plant, growing from six inches to a foot high, and bearing a head of bright orange-coloured flowers; it

is as much like a small single orange-coloured wallflower as anything. This species is well adapted for the beds in Dutch or geometrical gardens; indeed there is hardly any other plant which furnishes the colour—an intense orange. It is perfectly hardy, and if sown in the spring will bloom in June and July; of course much sooner if sown in pots like half-hardy annuals, and turned out in May, for they will begin flowering in the pots in May. The plant is so small that it is not worth the trouble of planting out, but should be sown where it is to flower, and if it comes up too thickly let it be properly thinned; but unless it is tolerably close it makes no show, and would fail as a bed plant. It looks well in patches round a border, and in pots among other dwarf blooming plants, because its colour is not very plentiful among annuals. Indeed it is so much the form of a weed that but for its colour it would not be cultivated; as a proof of this, some of the hedge mustard is as good in all respects but the colour, and that is either white or yellow, which not being at all scarce, but, on the contrary, plentiful, in better flowers, renders them worthless.

TIGRIDIA (Tiger-flower).—One of the most showy and remarkable of flowers, but at the same time one of the most fugitive; the flowers last but a few hours, but there is a good succession of them produced. They are hardy bulbous-rooted plants from Mexico, called by many the day-lily. The plant grows dwarf, and blooms with a large singularly formed flower like a cocked hat reversed, beautifully spotted with a darker colour upon a yellow or deep orange-coloured ground. There are two so-called species, but very similar in all but being of a darker or lighter ground colour. *T. pavonia* has the flowers orange and red; *T. conchiflora* is dark yellow with spots. There are one or two seedling varieties differing slightly from these. The flowers last but the day they come out if the sun is pretty hot, which it generally is when they flower, in June; they do not grow more than a few inches high, and should be planted in a mass, because there will then be a number of flowers open for some time; when planted singly that is not the case, for there will be days when a plant will have none, and that, too, before it is out of bloom altogether. Plant them in early spring, say March, three inches deep, and take them up in the autumn; or if they are left out, throw litter over them, for though called hardy they will not stand much frost.

PELARGONIUM, or GERANIUM (*Pelargonium sp.*)—Botanists distinguish between Pelargoniums and Geraniums, the former having irregular flowers (petals not all alike in form, &c.), and ten stamens, the latter regular flowers (petals alike in size, form, &c.), and five stamens. According to this arrangement, the popular flowers now so much grown, and familiarly known as Geraniums, are properly Pelargoniums. They have sprung by hybridization and cross-breeding from a race of shrubby and tuberous-rooted kinds which are natives of the Cape of Good Hope, and have reached their present stage of beauty through a long course of successful culture. The Pelargonium (*Pelargonium*) is a universal favourite ; it is a greenhouse plant, growing well in a soil composed of half loam of rotted turves, one-fourth turfy peat, and one-fourth well decomposed horse or cow dung rotted into mould. They are raised from seed for new varieties, and propagated by cuttings to increase the favourite sorts ; the seed is sown at the beginning of the year, and when they are large enough to handle well, they may be pricked out four or five in a pot ; and when they have grown as large as they conveniently can in them they may be separated and put one in a pot. As the plants fill the pots with roots, they must be shifted to larger ones. They will all bloom the next year. To propagate from cuttings, begin as soon as the plants have done blooming in July ; cut them all down very much, and form the remainder by pruning into a proper skeleton, as it were, for growing into a good-shaped shrubby plant for the next year. The pieces cut off will all make plants; in fact every piece with two joints to it will make a plant ; cut the bottom clean up to a joint which is to be put in the ground, and let the other joint be above the surface. Every piece will strike in the common open garden, merely being covered with a hand-glass and well watered. When they are struck they may be potted singly in small sized pots, and as they fill these with roots they must be shifted into larger ones ; they may be grown out-of-doors until September, when they will require to be housed. They may be placed in the greenhouse or in a garden frame, but on no account must the frost be allowed to enter. The less heat and the more air a Pelargonium has the better, so that it be not frosted. (See *Horticultural Magazine*, Part 40.) The Geraniums (*Geranium*) are a race of hardy herbaceous plants, ornamental, of the easiest culture, and propagated by division. *G. ibericum*

has blue flowers, in July; *G. sanguineum*, red, in July; *G. pratense*, blue, in July; *G. striatum*, striped, in August.

HYDRANGEA (*Hydrangea Hortensia*).—The most popular of this family has been long familiar to all classes, and forms one of the commonest of the market plants which sell annually by thousands in all large towns. Grown in the ordinary way it is a very showy plant, but with some pains it is to be made a very noble object. There are two very different ways of growing it; the one to form a shrubby plant, the other a single stem and a large head of flower. The latter is the favourite mode of growing it for show, the great aim being to produce as large a head as possible. In July take cuttings of the strongest shoots, and strike them in the common border under a hand-glass; when struck pot them in forty-eight sized pots in one-third loam, one-third dung, and one-third peat, well mixed together, and passed through a very coarse sieve. Such of them as branch out will make a pretty little shrubby plant; any of them confined to the single stem will in all probability form a large head. About the time the general set of plants drop their leaves, and pretty well indicate the strongest heads, other cuttings may be taken off and struck in slight bottom heat, under a bell-glass, and grown in the stove at once. There will be a change of season as well as a difference in growth, but all will be fine. There is, however, nothing to stop us from growing the plant as large as we please; we have only to shift every season from one sized pot to another, so as to be able to winter it free from frost. When growing out of doors it must be protected in some way, either by matting, or covering with litter, or by some other means; otherwise it will be killed a long way down, and sometimes close to the ground; but it will often spring up from the roots, and grow vigorously to make up for its lost wood. The potted plants struck in July should be bloomed in the greenhouse, but any of them may be turned out into the borders in May. The Hydrangea, like many other plants, blooms finer when young than when it has grown three or four years, for though the plant is larger, and has more heads of flowers, the heads and the individual flowers also are smaller and not so noble. The plant forces well, stands a pretty good heat, and is one of the prettiest of the forced flowers in spring. It has always been treated as a greenhouse plant, and is certainly not more hardy than a Camellia or an Indian Azalea. The

H. japonica is a very distinct and a showy plant, and though it does not bloom in such large heads as the other, its appearance is more picturesque, especially when grown as a bush; its heads of flowers are blue and white, and are produced about July. It requires the same treatment as the *H. Hortensia*, whose flowers are naturally a pale pink, but are changed by culture sometimes to blue.

ALISMA (Water Plaintain).—A genus of water plants, of which nearly all the species are hardy. The flowers are white, or white tinged with purple, and are borne in July and August. They may be potted into large pots, and the pots set into water deep enough to cover them.

HELICHRYSUM.—A handsome race of plants, producing "everlasting" flowers. The group is now divided into several genera, to which the names *Aphelexis*, *Astelma*, and *Phœnocoma* are applied. These three genera, with many of the Helichrysums, are greenhouse plants, chiefly from the Cape of Good Hope. The compost for them should be half loam from rotted turves, and half turfy peat, well mixed. They strike from cuttings under a bell-glass. The cuttings must be cut up to a joint, and be put into the compost they grow in; when struck they may be potted in small pots (size sixty), and be grown in the greenhouse near the glass; they should be topped as soon as they begin fairly to grow, and encouraged to grow shrubby with their lateral shoots. While small they should not be allowed to flower, but the buds should be taken off as soon as they appear and can be got hold of; this encourages free growth, and prevents the loss of time while the plant blooms, for they make no growth while the flowers are swelling and opening. All the shoots that are too vigorous must be topped, so as to check informality or awkwardness of shape. *H. grandiflorum* and *H. fulgidum* are pretty greenhouse shrubby kinds, the former having white, the latter yellow flowers, both blooming in July. *H. arenarium* is a showy dwarf hardy perennial, growing freely in any kind of sandy soil, and bearing a profusion of yellow blossoms in August. These blossoms are small, but grow in good sized heads, many of which are preserved, dyed of various colours, and sold in the shops as a component of "winter nosegays." The common large-flowered yellow annual "Everlasting" is the *H. bracteatum*, of which there is a variety in which the flower-heads are white, and another called *macranthum*,

which is white tipped with rose. Though introduced from New Holland, they are treated exactly as hardy annuals, being sown at the same time and in the same way as other annuals are; they come into bloom at an advanced period of the summer, and continue a succession of blossoms until destroyed by the frosts of autumn.

ALLAMANDA.—The species of this genus are very beautiful shrubby stove plants. *A. cathartica* is a somewhat rambling plant, with brilliant yellow flowers produced pretty abundantly in July; they are as large as a convolvulus, but divided on the edges. It has handsome bright green foliage, and grows rapidly if at all encouraged. It is always grown in rich loamy soil, but it would be better to grow it in two-thirds loam and one-third peat, and moreover it should never have bottom heat; on the contrary, it does best in the coolest part of the house. It requires occasional examination, to see that the mealy bug does not affect it; on the slightest appearance of any bug or scale, the plants must be carefully washed with soapy water, moderately warm, and the best kind of long-haired shaving brush will be found the most useful means of applying these soap-suds in the corners, where the bug usually begins its ravages. A syringe will be found useful to wash off the suds and clean the plant. Cuttings strike well in sandy loam and put under a bell-glass, and with slight bottom heat, and they may be potted off as soon as they have struck in sixty-sized pots, and as they fill those with roots, they may be shifted to others of a larger size. As the plant is inclined to ramble, it may be treated as a climber; or as a shrub by stopping the ends of the branches while short, and so encouraging lateral shoots. *A. Schottii*, recently introduced, is more compact in its growth, and has very large rich coloured orange yellow flowers. This and the other species require the same treatment as the *A. cathartica*.

AMETHYSTEA.—This is a very pretty hardy annual, which grows about two feet high, and bears light blue flowers in July and August. The seeds should be sown in light peaty soil, and it will only require to be covered over slightly and thinned when it comes up. It is too high for a clump plant, but is pretty set a little back in the borders. It may if preferred be sown in pots,—a few seeds in a pot,—and thinned properly when up; by this means it may be brought forward a month sooner, and a succession ensured. It bears abundance

of seed, which should be gathered and cleansed as soon as it is ripe.

AMMOBIUM.—Of this genus, *A. alatum* is a nearly hardy perennial, bearing white or white and yellow flowers in June, and growing about eighteen inches to two feet high. The seed may be sown thinly in spring, and raked into the ground in common soil, and when they are large enough they may be planted out till the autumn, when they may be potted up in two parts loam and one peat. They are afterwards to be treated as frame plants, for those who may think them worth the trouble.

AMMYRSINE.—The species of *Ammyrsine—buxifolia* and *prostrata*—are better known under the name of *Ledum*. They are pretty shrubs, very dwarf, and bearing in May a profusion of small white blossoms in close heads at the ends of all their tiny shoots. They are natives of North America, and are hardy, requiring to be planted in a prepared bed of peat soil, in which they grow readily in sheltered situations. They are propagated by layers.

AMORPHA.—The species are for the most part deciduous shrubs, hardy or nearly so, some of them requiring the protection of a mat-covering in winter. They grow readily in garden soil, and are propagated by layers. *A. fruticosa*, a hardy shrub, bears purple butterfly-shaped flowers in July, and those of the other species, purple or blue, are of the same form.

ACHILLEA (Milfoil).—An extensive family of hardy herbaceous composite flowered plants, of which many of the kinds are weedy, but some very pretty. *A. Ptarmica flore pleno* has double white flowers, and looks pretty in a border. *A. tomentosa* is a dwarf kind with bright yellow flowers, ornamental on rock-work. They are free-flowering easily grown things, thriving in common soil, and propagated by division of the plant.

ACHIMENES.—This is a showy family of stove plants, requiring little more than heat, moisture, tolerably rich compost, and to be placed near the light. It is in many respects like Gesnera, and the treatment should be very similar; there are several species and varieties in general cultivation, and as some cultivators have been raising seedlings, we may expect some welcome additions. At the end of the blooming season the plant rests, the flowering stems die down, and there

is nothing seen but the scaly bulbs; these will keep better without moisture, and placed on a dry shelf, but must be left in their pots or pans. When the buds begin to swell and indicate growth, the plants may be shifted if they require it, and potted with a mixture of loam, dung, and sand, in equal parts, and be placed well exposed to the light, for they will be drawn too much if left on a back shelf, which is too often the case in large collections. They cannot be grown too dwarf, and this cannot be attained if they are at all shaded or placed where they have not the full light; they should be turned to prevent their leaning one way, and growing awkward. To raise young ones, break out the shoots from the bulb when only two inches long, and strike them in bottom heat, changing from smaller to larger pots as they fill up with roots. Seed may be sown in the spring, and when up, be pricked out as soon as they are large enough, three or four in a pot, and as they get still larger, potted in single ones and changed to larger as they grow; they bear showy round flowers for the most part, and all up the branches. Rose colour, purple and blue predominate among them, but there is one, *A. pictum*, which is rich scarlet and spotted on a yellow ground. (See *Horticultural Magazine*, Part 17.) *A. coccinea* is a pretty plant, and is one of the smallest of the Achimenes, but the flowers are bright scarlet. *A. longiflora*, with large blue flowers, and *A. patens*, with rich purple flowers, are two of the most showy. A small white flowered kind, *A. candida*, makes a pretty contrast. There is a good deal of difference in the way different people grow these plants. Some grow them with only one shoot from the pot, and this is made to form itself into a bushy plant by stopping it and encouraging lateral shoots. Others put half-a-dozen tubers in a pot, and this plan produces a complete thicket of branching shoots.—See *Horticultural Magazine*, Part 3.

STYPHELIA.—A genus of evergreen greenhouse shrubs, with the habit of *Epacris*. Although there are several members of this family, they are all so immeasurably inferior to *S. tubiflora*, that they hardly deserve a mention. That is a handsome evergreen shrub, which in its season is, under good management, literally—covered, we were going to say, but inasmuch as the blooms bend downwards, and are under the branches rather than above, we must say, the flowers are as numerous as leaves; one great and excellent quality is, that

they last as long as two months in perfection. The flowers are a rich scarlet crimson, of a tube form, as indicated by the title, and an inch or more in length. Half loam from rotted turves and half turfy peat is a compost suited to the plant; and small cuttings an inch and a half long will strike well in sand on the top of the compost, which the bottom may be made to touch but not go into. They require the ordinary treatment of Botany Bay or New Holland plants; that is, potting in small pots, growing in the greenhouse, and changing from one pot to another as fast as they are filled with roots; great care in the watering, for it is as difficult to manage in this particular as the *Erica* family, which wants constant watching and enough watering, but no more. It is one of the prettiest of greenhouse plants; and there is no excuse for any lover of plants who has it not in his collection.

ZAUSCHNERIA.—A pretty perennial species of *Zauschneria*, called *Z. californica*, almost, if not quite, hardy, has been introduced to this country during 1848. It forms a densely branched mass, a couple of feet in height, bearing numerous flowers, of a scarlet colour, something like fuchsia blossoms, only erect instead of pendent. It blooms throughout the summer, and is well suited for the decoration of the flower-garden during that period of the year. It propagates very freely from cuttings, or also by division. The old plants require to be kept rather dry in winter. It may be planted out in any moderately good garden soil, and requires no subsequent culture, beyond what is routine.

BLUMENBACHIA.—Annual plants a good deal like the *Loasa*, from which genus one of the sorts, *B. insignis*, has been removed. They are hardy trailing species, one with white flowers, the other green and red. They are more curious than beautiful. They require to be sown in pots, and when large enough, planted out where they are to bloom, or potted to run up a trellis of some kind. They will grow in almost any garden soil.

CHOROZEMA.—A very handsome family of evergreen greenhouse shrubs, requiring some attention; growing best in loam, peat, and dung, and blooming with butterfly-shaped flowers in the early spring. The most popular of these are *C. varia*, *C. Henchmanni*, *C. ilicifolia*, *C. cordata*, *C. nana*, *C. ovata*, and *C. rhombea*. The flowers of these are yellow, orange, red, or a mixture of two or more of them. The habits

vary also, but they all require the same treatment. Small plants from cuttings may be put into the smallest sized pots, and as they increase in size they must be shifted into larger; but the same compost must be used. They should on all occasions have all the air that can be safely given even in winter time. To strike the cuttings they should be selected from unblooming shoots, two inches of the top taken off at a joint, and the lower leaves removed for nearly an inch. Fill up a pot to within three-quarters of an inch of the top; strike it on the table to settle it a little, and after levelling it put three-quarters of an inch depth of silver sand, which must be thoroughly wetted; stick all the cuttings in, so that the bottom touches the mould, and when they are all done, with a very fine rose settle the sand to the stems by a little gentle sprinkle; put a glass over, and place the pot of cuttings in a declining hot-bed, or on the tan of the propagating house or pinery, but a declining hot-bed will do; the glass must be wiped every morning, and the cuttings kept moist. They will very soon begin growing, and show that they have rooted; they may then be potted into the smallest sized pots, and are ready for growing as the others. Seed may be sown in the spring in wide-mouthed pots, and as soon as the plants are large enough pot them singly, and treat them as cuttings that have struck root.—See *Horticultural Magazine*, Part 47.

BONAPARTEA.—*B. juncea* is a most elegant plant, growing with a large mass of decurved rush-like leaves, all springing from one centre or heart, and continuing usually for several years in this interesting state. When it flowers, an erect stem issues from the centre of this heart, and bears a numerous array of tubular blue flowers. It grows in sandy loam, requiring a largish-sized pot. The plant increases from seeds, or by divisions of the offshoots when produced. It is not often seen in bloom.

WISTARIA.—The most beautiful of the two hardy species, familiar in gardens, is *W. sinensis*, or as it was formerly named, *Glycine sinensis*, a strong growing deciduous, and perfectly hardy climbing shrub, of great beauty, bearing long racemes of purplish lilac flowers, formed like the laburnum, and showing its flowers in perfection before the foliage. It is generally grown on a south wall, and early in the spring makes a show that eclipses most other things near it. It grows rapidly, making branches from fifteen to twenty feet

in a season, when it once fairly establishes itself. It is propagated by layers, which root freely, and only require to be notched and pegged underground any time between Michaelmas and January. These may be taken off in the autumn, and potted, for the convenience of planting out when fully established. While in pots, like many other more hardy plants, it wants the protection of a frame in hard weather, unless the pots are plunged, in which case the frost cannot penetrate the sides of the pot, which it would if not protected in the ground or under cover. It may be raised from seed sown in the open air in spring, and treated the same as layers in pots when large enough.

DIOSMA.—A small tribe of greenhouse shrubs, remarkable for their strongly scented foliage, which, however, according to our notions, is no recommendation. Some of the genus so called have been removed to *Adenandra, Agathosma, Baryosma*, &c. This family is composed of shrubby evergreens with small close foliage, and flowers for the most part white at the ends of all the shoots. They are very easily raised from cuttings about two inches long from the ends of the branches. The foliage is taken off about three-quarters of an inch of the lower end of the stem, which is cut very clean up to the joint; these cuttings inserted in an ordinary flower pot filled with a compost of loam, dung, and turfy peat, and covered with a bell-glass, watered moderately and placed in the greenhouse, will very soon strike, and may be potted into thumb-pots first, and when they have filled these with roots, changed to sixties, from those to forty-eights, and so on; but it will be desirable to keep the plants a little in shape by stopping the most vigorous branches, and so causing lateral shoots. They make a variety in the greenhouse, but there are many very much prettier plants to our fancy, and the strong scent of the foliage is to us anything but agreeable. The prevailing colour of this flower is white, though there are two or three with pinkish or purplish flowers; they bloom in May, June, and July.

ANDROSACE.—A genus of very elegant alpine plants, of the primrose class; all small and dwarf, and the hardiest of them well adapted for sheltered rock-work. The whole of the species are very interesting, grown in pots, among a collection of alpines. Their greatest risk is from excess of

moisture about the crowns or roots, and from the dampness of our winters are much more liable to suffer injury than from the degree of cold. They ought to be kept in small pots, very well drained, and should have a mixture of very sandy peat and light turfy loam. In the application of water, great care is necessary at all seasons, but especially in winter. *A. brevifolia*, and *lactea*, white ; and *A. carnea*, and *Chamæjasme*, pink, require the shelter of a frame ; the first blooms in May, the other in July. The other species endure the temperature of our climate. The perennial, biennial, and annual species, require the same kinds of treatment, differing only in the mode of propagation, which in the former is by division, and in the latter by seeds.

ANDROSÆMUM (Tutsan).—A shrub, of dwarf compact habit, growing not more than a foot high, and bearing numerous yellow flowers in August. The species is called *A. officinale*. It forms a pretty undergrowth in shrubberies, growing readily under trees. Common soil suits it, and it is easily increased by dividing the tufts of the roots.

TECOMA.—A genus of elegant tubular-flowered plants ; consisting of climbers both evergreen and deciduous, and of evergreen and deciduous shrubs. *T. radicans*, and its varieties, are beautiful orange-flowered hardy deciduous climbers, very ornamental against a wall or the front of a house. They grow well in good rich loam, and are propagated by layers. The plant should be pruned much in the same way as the vine, which its leafless stems a good deal resemble. *T. jasminoides* is a beautiful greenhouse evergreen climber, with white blossoms rose-coloured in the centre ; produced in July and August. *T. capensis* is another very pretty greenhouse bush, with orange-coloured blossoms in July. These greenhouse kinds grow best in a mixture of loam and peat, and propagate freely by cuttings placed in a gentle heat.

BILLARDIERA.—Handsome evergreen climbers with neat glossy foliage, and greenish-yellow or cream-coloured flowers, succeeded by handsome berries ; *B. longiflora* has these berries of a beautiful purple. They grow in peat and loam, mixed in equal quantities, and may be raised from seeds, or are easily obtained from cuttings placed in a slight heat. The beautiful blue-flowered *Sollyas*, are closely related to these, and are united with them by some.

VERBENA (Vervain).—A favourite genus, consisting for the most part of perennial species, some few of which are hardy, but the majority require some degree of protection during the winter season. There is an indigenous species of vervain, but it is a mere weed. The best hardy kind of which we have any knowledge is *V. venosa*, an upright-growing plant a foot and a half in height, bearing purplish-rose-coloured flowers in July and August; this propagates readily by parting its somewhat creeping underground stems. The race of half-hardy Verbenas has given rise to those fine seminal varieties, which are now during summer to be seen decorating almost every garden. *V. Melindres* was the first favourite in this now extensive family, but that, like all the other so-called species, appears lost amid the wonderful variety of far more beautiful sorts that have sprung up under the florist's superintendence. The *V. Melindres* will, however, always have one advantage that will retain for it a popularity not easily taken away; it has been beaten in form over and over again, and has been equalled in colour, but its creeping habit cannot be excelled, nor can its abundant bloom. The arbitrary names given to hundreds of new varieties—new in habit, form and colour—would be useless here; that which is the best to-day may be beaten to-morrow. As useless would it be to mention the specific titles by which the catalogues register a score or two, that we should not allow a space in even a moderate garden. The verbena strikes freely under a bell-glass in a pot of loam, dung, and peat, and it grows freely in any rich light soil, consequently most flower gardens agree with it. The seeds should be sown in pans, and placed in a greenhouse or frame. The young seedlings should soon be picked out into pots, half-a-dozen in a pot, and after that they may be planted out in beds six inches apart, until it is seen what flowers they produce; and such as are worthy may be propagated. There is not a better plant for flower-beds and borders at present in cultivation. In geometrical gardens, use those which approach nearest to the admirable habit of *V. Melindres*, which creeps along the ground spreading and rooting at every joint, until it covers a bed like a carpet, and throws up its umbels or trusses of vivid scarlet all over its allotted space. Whites, lilacs, deep purples, and pinks of all shades, abound in this brilliant family of plants, and some attention is required to keep up a uniformity of colour. If a

parterre be formed of twenty-four beds, these consisting of four sorts of figures, six of each kind; then three of that six should be of one colour, and three of another; say three scarlet and three white: in the next six, three pink and three dark purple. The other twelve beds may be made up of annuals or perennials of other kinds; but four distinct colours of verbena cannot be surpassed for the length of time they are in bloom, by anything that can be selected. Bright blues and bright yellows can be furnished by other things; but scarlet and white, flesh colour or pink or deep purple, cannot be furnished by any tribe of plants so well as the verbena, because they are as close to the ground as a carpet, and last in full bloom for months. Cuttings put in in the autumn will make splendid plants for turning out in the early spring.

CISTUS (Rock Rose).—The family of Rock Roses are remarkable for brilliant but evanescent flowers. The flowers are large, and for the most part distinct and rich in colour, but their texture is remarkably flimsy, and they soon fall. Nevertheless these plants, which form compact evergreen, though scarcely hardy shrubs, are very gay subjects for rock-work, or sunny spots, on account of the profusion of blossoms they bear during the hot weather of summer. They are increased by cuttings, which should be planted in spring, under hand-glasses, in sandy and rather peaty soil, and the plants when rooted ought to be kept in pots, and shifted from time to time until they can be planted where they are to remain. There is an advantage in having the young plants in pots, as the protection which is essential to their well-being during the winter months can be more readily given them. The amount of protection they receive in winter must depend on the locality, and the severity of the season: they will not bear much frost without injury. They require a dry and well drained soil, and no better place can be found for them than a piece of exposed rock-work. In such situations, too, on account of their slow and somewhat stunted growth, they experience a minimum of injury from cold. Two-year old plants are, perhaps, the handsomest, unless the older ones escape uninjured by frosts. The best sorts are *C. ladaniferus*, with white flowers beautifully spotted with purple; *C. corbariensis*, white, the margins tinged with rose; *C. laurifolius*, with large white blossoms; and *C. purpureus*, the blossoms of which are large and very handsome bright reddish purple,

with a yellow spot, and dark purple velvet mark on each petal. The general blooming season is June and July.

HELIANTHEMUM (Sun Rose).—These are small evergreen shrubs, mostly trailing, and among the prettiest ornaments of rock-work; they are immediately related to the Cistus family, but are altogether smaller. The genus comprises more than a hundred species and varieties, some requiring a frame, but the greater part nearly hardy; thirteen or fourteen of the varieties are hardy annuals; thirty and more are frame plants; and the rest hardy shrubs and trailing plants. They are various in colour, very fragile, grow chiefly upon rocks and rock-work, and therefore require hard, dry and poor ground. The annuals may be sown thinly on the ground of the common border. The others want but little care except so far as potting the tender and planting out the hardy sorts. It is very desirable that the few of those that are at all necessary in a garden should be selected while in bloom, that the purchaser may know what he is about. There is so little difference in many of the so-called varieties, that ordinary people would not detect it. The vast majority are yellow, a few are white and red, but the shades are all between the red and yellow. The poorer the loam in which these plants are grown the better; or a mixture of loam and peat is as good as anything: they are, however, best on rock-work and banks. In raising them from seed the same kind of soil is used, and the seed is to be sown in wide-mouthed pots; the plants must be pricked out three or four in a small pot, as soon as they are large enough, and when they have grown to fill these pots, let them be planted singly in small pots, to be changed as the roots again reach the sides. Let them then be placed in the borders or on rock-work or banks. The shrubby kinds may be struck from cuttings. It is a good plan to keep a stock in small pots for facility of preservation during the winter, when the exposed plants are sometimes killed. Some of the most distinct of the dwarf trailing sorts are the following:—*H. rhodanthum*, rose; *H. venustum*, crimson; *H. tauricum*, yellow; *H. macranthum*, creamy white; *H. hyssopifolium*, copper colour; *H. apenninum*, white. There are double-flowered varieties of several of these colours. The general blooming season is from June to August.—See *Horticultural Magazine*, Parts 28 and 45.

MIRABILIS (Marvel of Peru).—Before the introduction of

the dahlia this plant was a great favourite in large choice gardens, and at times made a splendid appearance in the borders. It is a perennial, with a tuberous root, branching stems, and bearing a roundish flower with rather a long tube. The individual bloom is in one respect like the convolvulus; that is, it shuts up on dull days and in the dark or wet; it is therefore an ungracious looking plant in bad weather. The plant grows from eighteen inches to two feet six inches high. The flowers come at every joint, consequently when they fairly open they cover the plant. Some of the tubes of the flowers are as much as two or three inches long, others are shorter; some of the flowers are much smaller than others; some are yellow, some red, some white, and some of all shades between them, while others have two colours disposed in stripes. They should be raised from the best seed that can be got, and probably that may be very common; that is, the produce will be plants with insignificant flowers; but of this we must run the chance, unless we can get some from people who have taken pains. Sow the seed in a hot-bed in spring, and as soon as the plants are large enough prick them out three or four or half-a-dozen in a pot, to grow until the middle of May, when they may be planted out a foot apart all over the bed. Here they will only require to be kept clear of weeds, and be watered in the event of the weather proving more than usually parching, but not if the weather be at all seasonable. In September the foliage will be touched by the first frost, therefore it is better to dig the tubers up, cut off all the plants, and lay the tubers in sand in a box, where the frost cannot reach them. In the spring they may be put in the ground where they are to flower, whether that be in beds or borders; the former is the better, because it will be found that many are not worth keeping. Any that have bright colours, large flowers, plenty of them, and are of good habit, may be marked and described, and if desirable propagated in the spring; the rest should be thrown away. The Marvel of Peru was a great favourite at one time, but it has been greatly neglected of late. When you have got a few good ones you may propagate them as much as you like, by parting the roots or striking the shoots, like those of the dahlia; but we should rather keep on seeding and getting a few good ones before we troubled ourselves to multiply any unless they were extraordinary. Some of the flowers will be seen of a size less than a sixpence, while others

will have a trumpet-mouth as large as half-a-crown. The plants seldom come into flower before July, and they then continue in bloom till cut off by the frosts. The common species is the *Mirabilis jalapa;* two others less common are *M. longiflora* and *M. suaveolens,* both having white flowers, with longer tubes than in the common sort.

IXORA.—A noble family of stove evergreen shrubs, comprising several very striking species and varieties. *I. coccinea* and *I. alba* have been long cultivated as show-flowers, and formed the most important features in collections of stove and greenhouse plants. They require a soil of loam and peat earth, and they must be grown in the strong light or they become drawn. The cuttings root easily in bottom-heat in sand, which must be constantly moist, and they require a bell-glass over them ; if the sand be on the common soil in which the plant grows, it will cause the roots to strike into the compost and the plant to thrive. Pot the rooted cuttings in forty-eight sized pots, pinch out the growing heart of the plant to make it bushy, and give air when it can be done conveniently. Examine daily to see if there be any attack of bug or scale, and if there be, wash with a shaving-brush and soap and water, but do it gently ; the plants may afterwards be syringed to clear them of the soapsuds, and this remedy must be applied if necessary very often. As the roots fill the successive pots the plants must be put into larger ones, so that there must be no actual starving of the plant, though we are far from wishing rapid growth. As the noble trusses of bloom come at the ends of the shoots, and come large in proportion to the strength of the shoot, the stopping of the main ones to make side ones must be the work of judgment, because you may keep stopping and thereby increasing the number of shoots until they are all too weak to flower well, if at all. The form of the plant and the prospect of the flowers must guide the cultivator, who must produce good heads of bloom or he will be disappointed. There are other varieties, but they are all evergreen shrubs and require the same treatment. *I. crocea,* and *I. javanica,* are two very beautiful kinds with salmon-coloured blossoms ; *I. coccinea* has the flowers scarlet ; *I. alba* has them white. They may be had in bloom throughout the early part of the summer, and the blooms come in large close bunches at the ends of the branches.

GLADIOLUS (Corn-flag). —A family of bulbous-rooted

plants from the Cape of Good Hope, for the most part set down as greenhouse plants, but in fact flowering in the open air stronger and better than they will under any other mode of culture. They may be planted in the autumn six to eight inches deep in a warm border, and a little litter or temporary protection in the event of frost will be found desirable. If grown in pots it is necessary to place them in frames during the winter, for the frost would soon get through the sides among the small fibres, which grow next the pot, and injure the blooming if not hurt the bulb itself. Sandy loam and peat is the best compost, and if they are to grow in beds or on borders, the soil ought to reach a foot or eighteen inches deep. The plants, after flowering, require no water. They grow up from two to three feet high with sword-shaped leaves, and the flowers, which are like lilies on a smaller scale, come on long spikes hanging to one side of the stem, and often rather bending downwards gracefully as if by their own weight. There are many varieties, the colours being yellow, red, orange, pink, flesh, light purple, white, blush, and several of these differently combined. The roots multiply by offsets, and they may be raised from seed. This must be sown in pans very thinly in February, and be placed in the greenhouse, covered with a hand-glass ; when up they must be cleaned from every kind of weed and watered occasionally. The hand-glass may be removed, because after the first three or four days of growing they want no more protection than the greenhouse will give. When the leaves die down in autumn the small bulbs must be carefully taken up, fresh pans provided with the proper soil, and the bulbs replaced an inch apart all over the surface, the bulbs being covered about an inch. They must be kept in the greenhouse until they come up again in the spring, when the surface of the earth must be stirred with a piece of stick pointed, care being used not to disturb the little bulbs; give water when they want refreshment, and keep clear of weeds until the foliage dies down again, when the bulbs may be taken up, and in November planted again three or four in a pot (three-inch pots, size sixty), and kept in the greenhouse. At the end of this season's growth they may be taken up, and will be of a good size. In November they may be planted out-of-doors on a south border, covered with litter during the frosty months, and left to themselves after the beginning of May. In June and July they will most likely

flower. Of the larger growing sorts there are many beautiful varieties and hybrids raised in gardens; the most distinct of the hardy species and the best for flower gardens, are *G. natalensis* or *psittacinus*, flame-colour mottled; *G. cardinalis*, scarlet and white; and *G. byzantinus*, purple. *G. blandus* and *G. ramosus*, are light-coloured ones; *G. insignis*, scarlet. They flower in June and July.—See *Horticultural Magazine*, Part 12.

CARNATION AND PICOTEE (*Dianthus Caryophyllus, vars*).—These superb and highly-scented flowers are precisely similar as to their requirements; they are in their nature in every respect alike. They are propagated chiefly by layering; the shoots at the bottom of their stems are longer than those of the pink, and can be pegged under the surface to strike root when half divided from the parent; for by cutting any of the shoots half-way through, and pegging them under the surface where they are cut, the supply of nourishment from the parent plant will be diminished, and for this diminished supply the shoots endeavour to compensate by forming roots. The shoots in this case do not flag, because the connexion with the old plant not being cut off, as in the entire removal of a piping, there is not so much risk of losing any of them. In cutting these stems the knife should go in just under a joint, about the third joint from the top, and when nearly half through it should be split up half an inch above the joint; the sloping piece below the joint should be cut off even, and the half joint that is separated, will, when the stem is pegged down, send forth root. These layers, as they are called, may be all cut off in September and potted, in four-inch pots, two in a pot, with nothing but clean good loam—no dung. In February you prepare rich mould to bloom them in: half loam from rotted turves, a fourth decomposed dung, and the other fourth turfy peat and silver or other very clean sand; let this be mixed well and left in a heap. In the beginning of April get twelve-inch pots, filled one-third with sherds or crocks, that is, broken pots, then a third of the proper soil; then turn out the ball of earth with your pair of plants in it, and having placed it in the middle the proper depth, it is to be filled up all round; press the soil to the ball of earth, and after adjusting it properly and filling up the pot within half-an-inch of the top edge, place it on a hard bottom. Go through the whole in the same way. Water freely, and take all the possible

means to prevent vermin from getting to the pots; one plan is, to make shelves with their supports standing in pans of water. When the stems rise for bloom, treat them in the same way as pinks in every respect, even to the flowering. The carnation differs from the picotee only in the disposition of the colouring; the carnation is striped or ribboned outwards, the picotee is edged or feathered inwards. Many put cards on the buds of the flower that they may display the petals on them as they open.—See *Horticultural Magazine*, Part 20.

CLINTONIA.—A genus of annual plants, of which two or three different kinds are or have been in cultivation; they are *C. elegans*, *C. pulchella*, and a white variety of the latter. *C. pulchella* is one of the prettiest of all the annuals, striking from its mass of flowers, which however are very diminutive yet very bright, impressing upon the sight, black, white, blue, and yellow, though, perhaps, not strictly having either colour in perfection. It is a slender growing plant, dwarf and wiry, hanging about over the edges of the pots if grown in pots, but forming a very beautiful object on the ground, being covered with so many blooms as to hide the plant, except the surface of it, which the flowers take possession of. There is not much care required to cultivate this little gem; sow the seed in pots in the month of March, thin them so as to give the plants room, and keep them growing till May; then turn them out in the borders wherever there is a vacant space, and a patch is wanted; they will very soon flower, and form very pretty objects in the borders. But that a succession of flowers may be provided, some should be sown in the border about April; these will flower about the time the first set leaves off, so that the succession of flowers will be very acceptable. Indeed, many annuals can be managed so as to keep up a succession of bloom during several months, by sowing the same thing at several different seasons. But *C. pulchella* may be bloomed in pots, and is a much more interesting object than nine-tenths of the other plants in pots. *C. elegans* is also very pretty.

ROBINIA.—This is a family of shrubs and trees, many of them of large size, as is the case with the False Acacia or Locust tree (*R. pseud-Acacia*), which, besides its elegant pinnate foliage, and drooping racemes of white sweet-scented pea-like flowers, furnishes us with a hard and durable timber. For the flower garden and shrubbery, however, the species most appro-

priate is the Rose Acacia (*R. hispida*), for which the allied species, *R. macrophylla*, may be substituted in situations where there is space for its somewhat larger growth ; both, however, are shrubs, *R. hispida* growing from three to six feet high, and *R. macrophylla* from six to ten feet. These bear in the summer season long drooping racemes of large rose-coloured pea-like flowers. The rose acacias grow well in moderately good garden soil, but they require rather a sheltered situation, or their brittle branches are liable to be broken by the wind. They should be grown as standards, with a straight stem of three feet or more in height. They are usually grafted on the common false acacia, and the precaution is generally taken to graft close to the root, and a little below the ground, not only to avoid fracture, to which the united parts are liable, but also to facilitate union, which is promoted by drawing up the earth, so as to cover all but the top buds of the graft.

RHODANTHE. — There is but one species, *R. Manglesii*, at present in gardens. This delicate but nevertheless strikingly effective annual, is one of the prettiest of subjects for culture. The plant is about a foot high and branching ; the foliage elegant ; the flowers like so many pink stars abundantly sprinkled all over the branches ; and when well grown, as delicate as the most delicate artificial flowers. The petals are stiff and dry, and if gathered when in good order, the flowers may be classed among those vulgarly called " everlasting." The soil adapted best for its healthy culture, is a compost of loam, vegetable mould, decomposed cow-dung, turfy peat, and sand ; two parts of the loam, and one of each of the rest. This must be well incorporated and passed through a coarse sieve. In a shallow pan of this compost, gently compressed by striking the pan on the table and levelled even with the edge, the seeds should be sown in March or April, very thinly and evenly ; with the hand spread flat, press the surface gently all over ; and then, with a very fine sieve, shake enough compost over the seeds, to cover them, and no more. This may be placed in a hot-bed, or in the ordinary stove if there be one. When they come up let them be thinned sufficiently to give them a little room, and draw out any weeds that may come up with them. In a few days they will be large enough to prick out four or six in a pot of the size sixty (or three inches across); these may be put into the greenhouse, and allowed to grow until they nearly

touch each other, but they must be kept near the light and have air in very mild weather; and when they are first pricked out they must be shaded a day or two. They may next be shifted into the same sized pots, but only one plant in each, and be placed near the light. In these pots they may continue growing until the roots completely fill the space, and grow round the sides, when they may be transferred to pots of forty-eight size (four and a half inches across); continue to give them plenty of air, plenty of light, and moderate waterings; and in these pots they may bloom. There are few annuals that compete with them for elegance of form, symmetry, and beauty of flowers. When the period arrives for shifting them from their first pots, in which five or six were placed together, those which are not required for pots, that is, those over and above the number wanted in pots, may be turned out on the common borders, planting them near to the front, and without disturbing the ball of earth, so that they will be five or six in a patch; for single plants would be hardly conspicuous enough in a border among gayer and lårger flowers. From those in the borders you should expect your seed for another year, and be careful to gather it as soon as the flowers lose their bright pink colour; for, as the seed ripens the petals get paler; being a composite flower the seed is not within a pod, and would easily be lost. You pick off the flowers whole, and the seed easily rubs out. Plants sown in March should be in flower about July.

LONICERA (Honeysuckle).—This genus consists of shrubs, some of twining and others of erect growth; a few of them evergreen or sub-evergreen, but the majority deciduous, or casting off their leaves in winter. The flowers of several kinds of honeysuckle are especial favourites in gardens, in consequence of their delightful odour. Indeed if we take into consideration the exquisite fragrance of this family, its abundant bloom, its pretty bushy and climbing habit, and its obedience to almost every kind of treatment and training, we can hardly admit that it has a superior among all the hardy trees and shrubs, unless it be in the rose, which beats it in variety. Whether we grow it independently, with only as much support as a stake will give it, or form it into a covering for a summer-house, make it climb over a door-way or verandah, or even keep it as a dwarf bush, it has in all cases a claim for its excellence. There are many varieties, differing, however, chiefly

in their time of flowering, so that we can, by growing a few different sorts, preserve a kind of succession for many months. It grows in any soil; it propagates by suckers, by layers, or cuttings. It can be raised from seed, for it bears its berries abundantly. It may be pruned pretty close, or allowed to ramble without check or hindrance; nothing disturbs it, nothing prevents its blooming in its season; and the quantity of flowers depends only on the quantity of branches to bear them. If it be required to take any particular direction, it may be supported for a time in that direction; and one of the prettiest modes of growing the most desirable varieties is to support the main stems until they are the height required, and then to let it form a head like a standard tree. They will do this at five feet or ten feet equally well, and require nothing but trimming to the form we desire, checking them when they want to ramble further than we wish, and leading them where we want them to fill out. There are some rather tender varieties. The best kinds for a small garden are some of the varieties of the common honeysuckle, *L. Periclymenum*, of which that called the Dutch (*belgicum*), and the late red (*serotinum*), are the best; the former blooming in the early part, the other in the latter part of the summer. The evergreen trumpet honeysuckle (*L. sempervirens*), which bears whorls of scarlet flowers from May till August, but requires a light or sandy soil; and the Japan honeysuckle (*L. japonica*), which is robust, nearly evergreen, and flowers for several months in succession, bearing red and yellow villous blossoms; are, perhaps, next to the common kind, the most valuable of all the species. The first and last of these grow from fifteen to thirty feet high, and have odorous flowers; the other seldom exceeds ten feet in height, and its flowers, though very beautiful, are inodorous.

CARTHAMUS.—A genus of annual plants, of rather tall growth, which may be sown on a gentle hot-bed in spring, and transplanted into the open borders in May. *C. tinctorius* has orange-coloured flowers, in June and July; and is rather pretty for large borders on account of its colour.

DAVIESIA.—The Daviesias are a race of very pretty New Holland shrubs, bearing gay papilionaceous blossoms, in the spring months; the flowers are almost without exception of some shade of yellow or orange, generally marked with red-brown. *D. latifolia*, and *D. ulicina*, are pretty plants, both

flowering in June or July. They require the treatment of *Chorozemas.*

ECHEVERIA.—One of the prettiest families of succulent plants. They grow well in a compost of good light loam, mixed with a third part of pounded bricks, or old brick and lime rubbish; the pots must be well drained; and in winter little or no water must be given. They must be kept in the greenhouse beyond the reach of frost. Cuttings or suckers, as they may be produced, if dried a little before planting, after detaching them, will readily afford a supply of young plants; and all the species *may* be propagated by planting the leaves as cuttings. Some of the prettiest of the species are, *E. secunda,* scarlet, June; *E. retusa,* scarlet, November to April; *E. rosea,* yellow, winter; and *E. acutifolia,* scarlet, April.

FUNKIA.—These are very pretty hardy herbaceous perennials, from Japan, flowering during the period from June to August, and bearing somewhat flask-shaped drooping flowers, on an erect simple stem. *F. Sieboldtiana,* lilac; *F. ovata,* blue; and *F. subcordata,* white; afford a variety of colours. They grow freely in any light common soil, requiring no particular culture; but they must have a warm dryish situation, to induce them to bloom freely. They are readily multiplied by division of the old roots.

NERIUM (Oleander).—This is a remarkably showy family, particularly *N. Oleander,* and the varieties, *album, splendens,* and *variegatum.* They are noble objects in the conservatory; for, although they will flower freely when scarcely a foot high from cuttings, they will grow ten or fifteen feet high into splendid trees, and be covered with rose-coloured, or white, or variegated flowers, which come in bunches at the ends of all the branches. The Oleander may be almost set down as a neglected plant. There is nothing that beats it as an evergreen flowering shrub. The individual flowers come as large as a middling-sized rose, and ten or more in a bunch. Young shoots three inches long strike freely in light compost, in a flower-pot with a bell-glass over them; a little bottom-heat hastens the rooting; being potted off into sixty-sized pots, and not removed till they have filled the pots with roots, but nevertheless kept growing, they will bloom the first season, almost before they are a foot high, and continue to flower every season as they advance in size. They grow best in

loam, dung, and peat, well mixed ; and if the soil, by reason of the character of the loam, be too adhesive, a little sand may be mixed with it. They require to be placed in the stove to bloom well, although they have been set down as greenhouse plants, and as such they have been ill-treated in almost all establishments ; where they may be seen condemned to associate with a few old rusty orange and lemon trees, equally ill-used. The general flowering season is the month of July.—See *Horticultural Magazine*, Part 39.

TETRATHECA.—A small family of slender and very pretty shrubs, of which one species, *T. verticillata*, a pretty plant, covered with purple flowers about May and June, is commonly, though erroneously, called *Tremandra Hugelii*, in gardens. They are evergreen shrubs from New Holland, and require to be cultivated in the greenhouse. They should have a compost of rather sandy peat, with about a fourth part light loam added. The young plants must be frequently topped to force them into bushy growth. They are very impatient of over-doses of water, especially in winter ; though, like all shrubs grown in peat, drought is equally fatal. Young cuttings will root in sand under bell-glasses.

THALICTRUM (Meadow Rue).—A large family of hardy herbaceous perennials, worth growing in a mixed border, for the sake of their pretty compound foliage, but having rather insignificant blossoms. They grow freely in common garden soil, and are increased by division of the plant.

THERMOPSIS. — *T. fabacea* is a pretty hardy perennial, bearing yellow pea-like flowers in June and July. It is worth cultivating, and should have a light rich soil. It generally produces ripe seeds, by which it is best propagated ; the seedlings take a couple of years to grow to a blooming size.

THUJA (Arbor-vitæ).—These are among the best of evergreen shrubs for the shrubbery, or as specimen plants on lawns. *T. orientalis*, the Chinese arbor-vitæ, is well known, and is admired for its close cone-shaped outline. *T. occidentalis*, the American arbor-vitæ, has the same habit, but is of looser growth. There is another elegant hardy species, called *T. plicata*, not uncommon in gardens ; and one much rarer, the *T. pendula*, which has long slender drooping twigs, and is a most singular and very ornamental small tree. The commoner sorts grow well in any moderately favourable situation,

preferring a somewhat moist locality; they are best raised from seeds. *T. pendula* should have a drier position, and is increased by cuttings or grafts.

TORENIA.—The most ornamental species is *T. asiatica*, a trailing herbaceous-stemmed perennial, bearing through great part of the year a profusion of beautiful porcelain-blue flowers, with dark purple blotches. It is propagated by cuttings, which strike readily in a little heat; and when rooted should be potted into a rich open compost of rough peat, loam, and leaf-mould, equal parts, with a little sand added, and shifted on into larger pots as soon as the roots thicken among the soil. In winter it should have a cool position in a stove; and in summer may be placed in the greenhouse; where it should be kept cool, moist, and somewhat shaded. In some sheltered situations, it will succeed out-of-doors in summer, but not generally.

HELIANTHUS (Sunflower). — There are two kinds of sun-flower worth cultivating; the double-flowered perennial kind (*H. multiflorus*), which grows in common soil, and is increased by division; and the annual kind (*H. annuus*), of which some varieties are tall, others dwarf, some single, and others what is called double. This almost discarded very ancient ornament of the British gardens ought to be cultivated for its usefulness, if not for its beauty; but even in respect of this latter quality there are many occupants of large borders far less entitled to notice than this our old acquaintance. The seed of the sunflower is full of vegetable oil, which may be pressed out with less labour than that from rape or linseed; and the oil cake is fattening to cattle. The seed without crushing is highly nourishing to poultry, and is therefore of service in the farm-yard. The plant is very prolific, and probably yields more seed than anything that would occupy the same room. As, however, it is desirable to have the seed ripen early, let the young plants be raised in heat, sowing them in pots, or spread about in a hot-bed, in April; keep them growing with plenty of light and air to prevent their drawing up until the middle of May, when they may be planted in the common borders, or three feet apart in rows, and the rows four feet from each other. When they come to show bloom well, let all but the first half-dozen flower-heads be picked off, and that half-dozen will be the finer for it. Let the heads of seed be gathered as soon as the outer seeds on the head turn

black, and lay the heads in a box or other receptacle to catch the loose seeds. Keep the birds off when the seeds begin to ripen.

PHLOX.—The varieties among the perennial race of this fine hardy flower are so great, that it would be quite useless to attempt their enumeration. Some are very tall, others remarkably dwarf, and varying in colour from pink to lilac and purple, and some of a clear white. They require some arrangement as to their heights when grown in collection, nor must the season of bloom be neglected, for some are early, others very late. Many of the varieties only have botanical distinctions; a few sorts, that are strikingly different from each other and very showy, are very desirable in a flower-garden, and every year produces novelties. Of late there have been introduced striped flowers—new varieties raised from seed that have great claims for their superiority. *P. Vanhoutii* is of this description, and others are constantly appearing. Ordinary garden soil will bring these forward well; any kitchen garden mould will be found well adapted for their culture. They require to be planted a foot apart. They are propagated by parting the root, and may be raised from seed; the former perpetuates any approved variety, the latter gives us a chance of obtaining new ones. In choosing Phloxes, those which are most dwarf and most abundantly bloomed should be selected, with individual flowers quite round and large. These should be planted where they are to remain two or three seasons, for they are the better for spreading out a little. Waiving the florist's estimate of merit, the following sorts are very pretty for the borders:—*P. omniflora*, white; *P. canadensis*, pale blue; *P. suaveolens*, white; *P. procumbens*, blue; *P. setacea*, flesh-colour; *P. cordata*, purple; these bloom from April till August. *P. Drummondii*, an annual species, is one of the greatest acquisitions we have had of late years in the list of popular flowers. It deserves all the pains that can be taken with it, and forms one of the most showy of potted flowering plants. The colours vary a good deal, because there is no dependence on any seed bringing plants similar to the parent; but the general form of the plant is maintained, and its pretty habit and abundant bloom are apparent at all times. Let the seed be sown in heat of some kind in March or April, and as soon as the plants are large enough to prick out, let them be placed an inch apart in wide-mouthed pots for three

or four weeks, to save room while room is an object; they may be kept in the greenhouse. When they have grown till they touch one another almost, they may be potted separately in sixty-sized pots, (three inches across,) and placed under a garden light, where they can be covered against frost. Here they may remain with all the air that can be given on mild days, until their roots fill the pots, when they must be removed to forty-eight-sized pots, (four and a half inches across,) changing them without breaking the balls of earth; they may be replaced in the frame, unless the chances of frost have gone by; if there is no danger on this ground, the pots may be placed in the open air. By giving them all the air we can, the plants are kept from drawing up tall, and they may either be allowed to bloom in these pots, or be shifted once more, whichever is preferred; some may indicate fine growth, and be worth another change. They will all flower well, and form the prettiest object among all the potted annuals. They do well if planted out in beds of rich light earth towards the end of May.

ILEX (Holly).—One of the best families of evergreen shrubs, valuable not only for its beauty of growth, but also for the variety which it affords. For a small garden, the varieties afforded by the common holly (*I. aquifolium*) will be sufficient. Besides the common kind, which is an evergreen shrub, with dark-green spiny leaves; there is the spineless, the saw-edged, the hedge-hog, the white fruited, the yellow fruited, the gold and silver blotched, and the gold and silver edged; and of these variegated forms, many variations, which keep distinct under culture; indeed, there are upwards of twenty varieties distinguished by name. The holly grows best on light loamy soils, not too poor; but it will also grow pretty freely on almost any soil not too retentive of moisture. The common sort is raised from the berries, which do not vegetate till the second year; the distinct varieties are propagated by means of budding and grafting.—See *Horticultural Magazine*, Part 10.

IMPATIENS.—This genus contains some annual species which are interesting in flower gardens. The best species is, perhaps, *I. glanduligera*, an annual, tall, succulent, and branchy, bearing a great profusion of curiously formed purple blossoms in July and August. It should be raised like the half-hardy annuals, and planted out about the end of May in rich soil, and in a warm situation. It is also a showy plant

for the greenhouse during the summer season.—See *Horticultural Magazine*, Part 11.

IPOMOPSIS.—A showy North American biennial, of rather difficult culture. The seeds should be sown in July, thinly in small pots set into a cold dry frame; the plants are to be thinned to three or four, and removed to a shelf in the greenhouse, near the glass, where they remain during winter, being very moderately and carefully watered. In spring they are shifted into five-inch pots with as little disturbance to their roots as possible, but one or two of the plants should be cut away, leaving the strongest. They require throughout very careful watering, and a compost of equal proportions of sandy peat and sandy loam. The species is called *Ipomopsis elegans*, and has beautiful scarlet flowers in July and August.

JUNIPERUS (Juniper).—Evergreen shrubs, of which many handsome-growing species are grown. Some of the most beautiful in habit are—*J. virginiana*, the red cedar, *J. excelsa*, and *J. recurva*, which all form light, spreading, more or less pendulous bushes or low trees. The junipers prefer a loamy soil, but are not difficult of culture in any that is moderately good.

TABERNÆMONTANA.—A genus of evergreen stove shrubs, some of which are as much like the Gardenia, or Cape jasmine, as may be; the scent is the same, and the foliage is bright, and formed like it. We are speaking of those which are popular in our stoves. Cuttings taken from the ends of shoots that do not bloom will strike well in sand, with the bottom of peat-earth, and covered with a bell-glass, and a dung-bed is preferable to any other place all the while the plants are young. When they have struck, they may go through a course of regular potting, beginning with small ones, three inches over, and changing from time to time as they advance in size. While they are young, any bloom-buds that appear should be cut or pinched out, because flowering always delays a plant; but if the plants are in a private collection, then blooming small is more acceptable than a more rapid growth. They form very pretty bushy shrubs, and when they have made their growth for the season, and begin to rest, they must be put in a cool part of the hot-house, and have no water except just to keep them from dying. As soon as the season of growth arrives they want moist heat, and the dung-bed is the best, if room can be there made for them. The

popular kind is *T. coronaria*, of which there is also a double variety, both bearing white flowers about July.

ZAMIA.—A genus of remarkable looking plants, related both to palms and ferns, and exceedingly interesting in a collection of plants. There are some few greenhouse species, of which one, *Z. spiralis*, a native of New Holland, is a small-growing species, with pinnate leaves. They require to be planted in light sandy soil; and as they often exist for a long time with but little progress, the pots should be carefully drained.

ZEPHYRANTHES.—These are small plants, nearly related to *Amaryllis*, and requiring the same mode of culture. One or two kinds are hardy, as *Z. Atamasco*, and *Z. candida*, both having white blossoms, the former in May and June, the latter from July to October; *Z. grandiflora* is a rose-coloured hardy kind, blooming about July. *Z. rosea* is a pretty frame plant, producing rose-coloured flowers in autumn.

KENNEDYA.—This interesting family consists of climbing plants, bearing pea-like flowers in profusion; they are all greenhouse plants, capable of being grown and bloomed in pots, though they would climb a considerable height in conservatories, and they are all prolific of bloom. They grow best in a compost of half good sandy loam, a fourth dung, and a fourth turfy peat. If this compost be too adhesive, enough sand to lighten it must be added, not exceeding a fifth of the whole. The smallest plant, even a cutting just rooted, may be potted in this compost in a three-inch pot, and grown in the greenhouse until it is full of roots, and then changed to a larger pot until it is in a size that will carry a proper trellis; and a good deal of taste may be exercised in the choice of a support. In general climbing plants are made very unnatural and frightful by the manner of training. The *Horticultural Magazine* contains entirely novel remarks and sketches connected with this subject; and we cannot do better than refer to that work (Parts 4 and 5) for hints. In a general way, we may observe, that great round shields are like nothing in nature; pyramids are bad, because the plants want more space to cover instead of less as they advance; a straight pillar is tolerable, for we see ivy climbing a stone pillar; and climbing plants of any sort will cling to a column. The flowering of these plants takes place in April, May, and June; so that, if a plant be struck in February or March, and grows well all the summer, it will bloom well

the next spring. The entire family seeds freely, and they may be grown from seeds without difficulty. Sow them in pans or boxes; water the soil, and put them in a hot-bed or propagating house; and when they are up and large enough to be removed, prick them out three or four in a pot of the sixty size, or three inches across; when they have grown a couple of months or so, let them have a pot each, and grow them on, the same as other plants. To raise these plants from cuttings, select young shoots, and treat them like other greenhouse plants, and strike them under a bell-glass; when the cuttings begin to grow under the glass, you may conclude they are making roots, and you may soon pot them in sixty-sized pots to treat as we have already directed. The most distinct kinds, exclusive of those referable to groups now separated from *Kennedya*, are *K. rubicunda*, dull red; *K. Marryattæ*, scarlet; and *K. nigricans*, black and green. These all commence to flower in spring, and continue blooming for several months.

ZICHYA.—A handsome family of climbing plants, requiring greenhouse culture; they were formerly named *Kennedya*, and require exactly the culture of that genus. *Z. coccinea*, with scarlet blossoms, *Z. pannosa*, crimson, and *Z. villosa*, vermilion, are beautiful species; they bloom in the early summer months.

HARDENBERGIA.—Another group of the original *Kennedyas;* climbers, requiring the same treatment. *Hardenbergia ovata, H. Comptoniana*, and *H. monophylla*, are purple-flowered, coming into bloom about April; a variety of the latter, called *longi-racemosa*, has the flowers pink; they are very ornamental.

FUCHSIA.—Very few people grow these plants as they ought to be grown; and they are rarely seen at the exhibitions in a state that is any credit to the gardener. Most of the cultivators give them very rich compost, grow them with the assistance of heat, drive them on for size, and in consequence, spoil the beauty and symmetry of the plants. Take the smallest piece of the plant, with a joint at the bottom, and one bud or joint above, and put this into common mould, in a common flower-pot, and with proper moisture it will strike. The soil it does best with is loam from rotted turves, or clean loam with half its quantity of leaf-mould, and the climate not warmer than a greenhouse; which, in fact, should only keep

out frost. They should never have artificial heat, except enough to accomplish this. The plants should grow near the glass, and be turned round whenever they lean towards the light. They will then not grow rapidly, because they have nothing to excite them; but grow close, well furnished with leaves, short-jointed, and handsome in form. Fuchsias may be grown in a cold frame as well as a greenhouse all the summer, or a great part of the time in the open air, in any part sheltered from the wind, on a hard bottom. As fast as small pots fill with roots larger ones must be used; for there is no limit to their growth so long as pot-room can be given. The garden sorts are now so diversified, that it is useless to particularize any of them; those that were best a year ago have been beaten since; and nothing but seeing them in bloom will enable any grower to please himself as to the varieties he will purchase. It would be well to shift a plant directly you buy it. The catalogues contain some hundreds of named sorts, which have been raised from seeds in English gardens. (See *Horticultural Magazine*, Part 31.) There are some pretty species, worth growing in any greenhouse: these are *F. fulgens*, and *F. corymbiflora*, two large growing plants; the former with scarlet, the latter with crimson flowers; and *F. microphylla*, a pretty little kind, with small rosy-crimson flowers. *F. serratifolia*, and *F. spectabilis*, are two of more recent introduction; they are rather strong growers, and bear large flowers delicately coloured; the former, pale rose and vermilion; the latter, deeper rose and crimson. The old kinds, *F. virgata*, and *F. coccinea*, scarcely less beautiful than the present favourite race, admit of being grown in the flower-borders, dying down to the ground in winter, and springing up afresh on the return of spring weather.

CŒLESTINA.—A small family of composite plants, containing one species, *C. suffruticosa;* formerly known as *Ageratum cœlestinum*, which is valuable for the decoration of the flower garden in summer; it bears a profusion of sky-blue flowers through great part of the summer. The plants should be raised from cuttings, in July or August, potted into single pots, and kept through the winter in a dryish greenhouse, where abundance of air is admitted in all mild weather, and frost is, by any means, excluded; they may be kept in small pots, on shelves near the glass, during winter. In February they should be shifted into pots a size larger, and may be got

into ordinary shallow frames, as soon as the season will admit of these being employed as a safe protection against frost. In such frames they get more perfectly exposed to light and air. In May, the plants must be hardened to bear the open air without protection; and towards the end of that month they may be planted out. They grow from a foot and a half to two feet high.

AGATHÆA.—The Cape Aster, *A. cœlestis*, is a useful plant for the summer decoration of the flower garden; it is strictly a greenhouse plant; but for flower-garden purposes, should be managed precisely the same as *Cœlestina*. The flowers are blue, pretty, and the plant is a branchy free-flowering subject, a foot and a half high, and blooming from May to the end of October.

WISTARIA.—Hardy, vigorous-growing, deciduous climbers, of which two species are frequent in gardens. The *W. chinensis*, however, which bears long drooping bunches of purplish-lilac flowers in April and July, is the most common. This, as well as the other species, is raised from layers, and grows very freely in rich loamy soil. Young plants, when newly planted, are often of slow growth, but as soon as they get established they grow very rapidly, the annual shoots extending twenty feet in length. The flowers are, however, produced on spurs of the old wood. Horizontal training is the best for this plant: in fact, it looks well when a single shoot is carried along horizontally near the top of a wall, other plants being beneath it. It forms a fine conservatory climber; and we have seen a very good effect produced by training a single stem along the upper angle of a span-roofed greenhouse.

ISOTOMA.— *I. axillaris* is a pretty dwarf blue-flowered lobelia-like plant, requiring the shelter of a greenhouse in winter, but growing in the open air in summer, and blossoming through a great part of that period. It grows best in a dryish sandy soil, and in a warm situation. The plants should be raised from seeds in July, and kept through the winter, in readiness for planting out the following May or June.

KALOSANTHES.—Very ornamental succulent plants, formerly known as *Crassulas*. The handsomest are *K. coccinea*, and some larger-flowered and richer-coloured garden varieties. The months of July and August is the blooming period. Young plants are obtained by cuttings; for which purpose, the points of the free-growing shoots should be taken,

and these, after being cut through at a joint, and a few of the lower leaves taken off, should be laid out for a day or two to dry a little, and then planted singly in small pots, in any sandy soil, and set on a shelf in the greenhouse, where they should have just water enough to keep the soil moistened—no more. When rooted, the tops should be taken out, and the young shoots produced must from time to time be topped, so as to produce a dwarf thickly branched plant; which, when as large as is required, may be let grow to flower. The pots should be changed for larger ones as often as they get filled with roots; and a rich, but very free, open, loamy soil, employed. The variety called *miniata* is the best. *K. versicolor* is another pretty species, with striped red and white flowers; as is *K. jasminea*, with white flowers, all flowering at the same season of the year.

KŒLREUTERIA.—A small hardy tree, with elegant pinnate foliage, bearing, in the month of July, upright panicles of yellow blossoms. It is a suitable tree for a pleasure-ground or shrubbery where there is space for such subjects to be introduced. The only species is called *K. paniculata;* it grows in ordinary garden soil, and is increased either by seeds, or by cuttings of the roots or branches.

ALYSSUM.—A genus of dwarf-growing hardy perennials, with cruciferous flowers; very suitable for planting on rockwork, or, some of the kinds, along the front part of a flower-border. All the species bear yellow flowers. *A. saxatile* forms a beautiful bed for the flower garden, flowering in April and May; it is a low sub-shrubby plant, and is increased by cuttings. They grow in good garden soil; and are propagated, the herbaceous species by division, and the sub-shrubby ones by cuttings. They will also grow well from seeds, which should be sown in the open ground and raked in; when up they may be thinned, and when large enough planted out. Being perennials they want no culture; plant them out, and they will spread larger every year till you think proper to reduce them, when the portions taken away to lessen them may be planted where they may grow and spread like them. The plant commonly called Sweet Alyssum, is not of this genus; it is the *Koniga maritima.* The seeds of it may be sown in the borders where the plants are to bloom, and require no more care than other hardy annuals. The flowers of this plant are white, borne in profusion through a portion of the

summer months, according to the season when sown, and having a rather peculiar, strong, but not disagreeable scent, resembling that of honey.

AMARYLLIS.—This is a family of bulbous-rooted flowers of noble structure, with blooms of immense size compared with the plant, and forming one of the most showy tribes in cultivation. The species are few; but from the circumstance of its being taken in hand by florists and crossed in every conceivable direction, the seedling varieties are in proportion to the originals as fifty to one, and the cross-bred varieties are far more beautiful than the distinct species. *A. formosissima* (Jacobæan lily), also called *Sprekelia formosissima*, which is imported annually in large quantities, is a dwarf kind, as unlike all the rest of the family as may be; it has neither the habit nor the form of the others; the flower has narrow petals, very thick and of peculiar form, while the others are funnel-shaped more or less acute. This species should be potted directly the bulbs come over, in loam, dung, and sand, burying half the bulb in the soil, and placed in a common hot-bed such as cucumbers grow in; they will not be long before they commence growing and blooming, producing flowers of the richest crimson, exposing the entire inner surface of the petals; these last some time in perfection if removed to the conservatory or the dwelling-house. The other kinds are stove or greenhouse plants, but all do well in a stove. If when they have opened their flowers they are gently reduced to the greenhouse temperature, they last in flower some time. All these plants require is to rest after they have perfected their bloom; some turn out the bulbs, and let them dry on a shelf. If, however, water is withheld from the time the bloom declines, and the pots are placed in the dry, it is just as well as taking them from their pots; but when they begin to grow in spring, which they will do without watering, the ball ought to be turned out whole and placed in a larger pot, water supplied, and the plant set to work in the warmest part of the house, and near the light. If the bulbs, are taken out, which will be required once in two or three years, let the leaves all turn yellow before they are disturbed; they may then be shaken out so as to get rid of all the soil, and their roots may be allowed to dry; but except once in two or three years this violence need not be done; and they will always bloom better the second year than the first after planting. The principal species are, *A. aulica, equestris, Forbesii, formosissima, fulgida, Kermesina, reginæ, retinervia,*

rutila, striatifolia, stylosa (or *maranensis*), *vittata*, and *subbarbata*; and by crossing these, hundreds of really beautiful varieties, and thousands good for nothing, have been raised. Those who desire to cultivate these should see collections in bloom, and buy from them only; for although we could mention twenty handsome hybrids by name, there are plenty of bad ones under the same titles. The seed may be sown in pots in the stove or hot-bed, pricked out an inch apart as soon as possible, unless they have been sown at these distances, and then kept growing the first season. After this, change these pots every year till they flower. The species and varieties are perpetuated by offsets from the bulbs. Most of the species are now called *Hippeastrum.*—See *Horticultural Magazine*, Part 9.

AMPELOPSIS.—A family of hardy deciduous climbers, including the Virginian Creeper—*A. hederacea*—one of the best of all subjects, not evergreen, for covering a large space of bare wall or fence, and thriving in the most confined situations. In autumn, the leaves of this species before they fall assume a rich tint of crimson. They grow in common garden soil, and are increased by layers or cuttings. The flowers are quite inconspicuous, but the foliage is pretty.

ANDROMEDA.—The many varieties and species of this family render it highly useful in the shrubbery, for there are some of all habits, some sprawling about the ground, others forming noble trees, and others again growing into very handsome compact shrubs. There are some kinds fitted for all places. The best of the evergreen trees is *A. arborea*, which is perfectly hardy. The best of the shrubs is *A. floribunda;* both of these do well in beds of loam and turfy peat, like those made up for Americans in general. They are best propagated from layers and suckers, and strike root in one season. They bloom at very different periods; the shrub shows its bloom-buds in beautiful branching spikes by the latter part of the autumn, from which time until May they increase in beauty, and remain in perfection all June; the tree blooms in August. They are very fine ornaments in the shrubbery, the tree growing slowly, but reaching a good height, the shrub growing bushy and dwarf, rarely getting more than eighteen inches high. Perhaps *A. floribunda* may be set down as one of the most useful of all dwarf shrubs; for, like the Laurustinus, it looks well from the time the bloom-buds first appear till they are dead, and that comprises one half the entire year.

HOLLYHOCK (*Althæa rosea*).—The hollyhock is a noble flower, and the varieties are becoming so numerous and so much improved that it is an established favourite. The hollyhock is raised from seed and multiplied by parting the roots; the former, to produce new varieties; the latter, to propagate old ones. In the autumn of the year the old plants of hollyhock must be dug up and the soil shaken from the roots; when it will be seen how many hearts there are to the plant, and each one should be separated with a portion of root to it. These are to be planted out according to their sorts, in a nursery bed, with a label on each sort, to distinguish them from each other when not in flower; they should be a foot apart. Or they may be planted at once in the places in which they are to bloom. They will stand very well three years, or even more, if a large plant and a number of spikes of flower be the object; and even in parting them there is no occasion to divide them into single hearts, unless it be desired to increase the number as much as possible. They send up their spikes of flower from four to eight or even ten feet high, but are best about six feet; being, therefore, of this habit, they look best when planted at the back of borders, or in the midst of shrubs, the plants being in no way interesting, but the flowers, especially some of the best of the finest varieties, being very noble objects. The variety of colouring afforded by this plant is now very considerable, and some of them are very rich and distinct; they bloom from the latter end of July to September. (See *Horticultural Magazine*, Part 39.) There are several other species of Althæa: some annual and biennial, others perennial; but they are not of much importance in gardens.

ERYTHRINA (Coral tree).—A family, for the most part, consisting of stove shrubs. The most popular are *E. cristagalli* and *E. laurifolia*, both of which are very nearly hardy; that is to say, they will live out of doors with about the same pains we take with the fuchsia, namely, to cut them down when they have done flowering, and put some tan or litter over their roots. These very popular species grow up with a single stem from six to ten feet high, and along the upper half there are large pea-like, but very noble blood-coloured flowers, forming a spike of bloom several feet long. They are grown by those fond of such things in the open garden, under south walls, or in front of greenhouses; but they are beautiful objects in pots. Pot the roots as soon as they begin to start. Shake the mould

away, and put them in fresh compost, and in pots of a proper size, to allow of their growing without shifting. In pot-culture they allow the root to enlarge so that it will throw up many spikes; so that there is no limit to the size. All that has to be attended to is to see that there is soil enough for the plant to grow and flower in. Set it in the stove near the light, and let it go on till it flowers. The plant seems so thoroughly indifferent to seasons, that by starting some into growth at one time, and some at another, you may get plants to be blooming nearly all the year. When the plant has done flowering, let it rest as long as you please in the greenhouse, quite dry, with the pot on its side. It is a good plan to mark the dates on the pots, or take some other means of knowing how long they have been at rest, and so select some to grow at different periods; keeping each plant to its proper season, whether it be to flower in summer or winter, or any other time. Cuttings taken off at a joint will strike in bottom heat; and when struck may be grown through all the sizes of pots until they become flowering plants of the size you intend for the general stock. The young plants will bloom weakly at first, but they will soon acquire strength, as they will increase in size every season. The plants intended for out-of-doors may be planted under a south wall, and when they have done flowering they will die down partially; but the stems should not be cut down until the middle of September; and then to within four inches of the ground, and a large flower-pot may be covered over, or a heap of tan or some other kind of litter. These plants may be had in flower from June to October, or earlier, if forced at the proper season.

ALSTRŒMERIA.—This is a very elegant tribe of perennial plants; of which there are several species and many varieties. They comprise hardy, frame, greenhouse, and stove plants, of herbaceous and twining habits; and the colours are orange, red, yellow, purple, white, rose-colour, and mixed. The great majority, and particularly the favourites, are, when small, planted out in a warm border in the summer months, potted up in autumn, and when they begin to grow, these pots are changed from smaller to larger as fast as they are filled with roots; and the principal object, as they advance, is to keep them near the glass, so as to give them plenty of air when it can be done without chilling them. They will require some kind of support as they push up their stems, which are not

very strong; and their flowers are shown to better advantage by disposing the shoots in such a direction as to divide them a little. The twining sorts are disposed round and round trellises, like large pillars, but they are not adapted for pot-culture so well as the other kinds. They all grow well in loam, dung, and peat; and the stove varieties have only to be grown near the front, so as to have all the light they can get. The greenhouse and hardy varieties generally may be raised from seed sown in a common hot-bed in April, pricked out in pots in May, planted in a warm border in June, and potted up again in September. The stove varieties must be raised from seed, in a hot-bed; but when the plants are up the seed-pots must be removed to the stove. They may be pricked out four or five in a pot for the sake of losing no space, and here they may remain till they touch each other or fill the pots with fibre; they may then be potted singly into pots as small as they will go well into and allow for growing a little. The shifts from one sized pot to another must depend on their progress in filling with roots; because no plant can be doing much good without plenty of room; therefore they are changed from one sized pot to another as long as they are wanted to increase in size. They multiply by dividing the tubers or roots as the case may be; and soon spread again so as to fill large pots. Some of the more hardy kinds, such as *A. aurantiaca* and *A. pelegrina*, will bloom well planted out in the open air in spring, under the shelter of a south wall. Indeed, with scarcely an exception, they may be grown well in such a situation, and require no other protection than the covering of the ground during winter with a layer of some loose frost-repelling material. The situation, however, should be dry and warm. The species mostly bloom from July to September, sometimes earlier. Of the dwarf erect stemmed kinds, *A. aurantiaca*, orange; *A. Hookeri*, rose; *A. psittacina*, red and green; and *A. pelegrina*, striped; are among the best and most distinct; though all the sorts are very handsome. The twining ones are sometimes named *Bomarea:* of these *A.* (or Bomarea) *acutifolia*, orange and yellow; and *A.* (or Bomarea) *oculata*, rose and purple; are distinct and showy.

TAGETES.—This genus contains the French and African marigolds: the former named, *T. patula;* the latter, *T. erecta;* both well known and showy annual flowers, blooming from June or July onwards till the autumn. These plants have long

been favourites in gardens, and both have greatly improved under careful cultivation; so that the fine double varieties of each are really splendid objects. The African is of a rich golden colour, and very large; the French is of a rich brown, dark and light, but variously blotched or edged with bright golden yellow. In a large number of seedlings scarcely two will give flowers alike; and, indeed, on the same plant it is difficult to find two in all respects resembling each other. Both these kinds are raised from seed; and to get them pretty early we sow them in peat about March, let them have plenty of air to prevent drawing, and plant the French sort out in the middle of May, about three in a patch; because the diversity of colour assists in the good effect produced by contrast and variety. This, however, does not apply to the African sort, which may be put out singly; first, because they are not variegated; next, because they are larger, and one plant makes show enough in a place. When the French marigold is planted out in a bed it is very gaudy, and the numberless varieties in the mixture of only two colours, brown and yellow, is wonderful; the change merely consisting in the blotching, edging, and general marking of the flowers. All single and semi-double ones ought to be pulled up and thrown away the instant they can be detected. It is very desirable that this should be carried out through all the borders as well as in a bed, which every one should have for the purpose of saving seed. Besides sowing some in heat, some should also be sown in the open ground, to form a second season; for, although the first will keep blooming until the frost cuts them off, younger ones coming in are more compact plants, and the removal of the overgrown ones makes a change in the principal feature of the garden. The German seedsmen affect to sell several varieties of these; but a pinch of seed from a good double flower will give all of them in one patch. There is another annual kind which should find a place in all gardens, for its neat and elegant foliage, its rich orange flowers, and its compact and profusely flowering habit: it is the *T. tenuifolia*, sold in seed-shops as *T. signata*. The flowers are very small compared even with the French marigold, and they are single; but in soil not too rich, the plants form closely-branched compact bushes, and are literally covered with blossoms, which in the mass have a very charming effect. *T. lucida* is a pretty perennial, which bears yellow flowers towards the end of summer; it is

propagated by division, and requires some protection in winter.

HEDYCHIUM.—A family of tall graceful plants, herbaceous perennials, bearing spikes of white, orange, scarlet, or yellow flowers; requiring to be cultivated in the stove. There are several highly popular kinds. They should be fresh potted in January or February ; all but the strongest shoots should be cut away. The soil they best succeed in is a compost two parts loam from turves, half-a-part dung, and half-a-part turfy peat. The size of the root must determine the size of the pot ; and when the first pot is filled with roots it must be exchanged for one of larger size, until the plant comes into flower. The sorts in the highest repute are, *H. Gardnerianum*, yellow ; *H. coronarium*, white ; and *H. angustifolium*, scarlet. They require all through a pretty good supply of water ; and when the colours are showing they should be put in the coolest part of the stove, that they may be prepared for removal to the conservatory. In January turn out the plants, take off the suckers, and repot the roots in appropriate sized pots, not larger than necessary, to save room, but to meet their wants in that particular as they advance in size. From the time their bloom decays they should be allowed to rest, requiring no water, and would do in the greenhouse until the repotting time. The period of blooming is some time during the latter part of the summer, according to the time when they are excited, and the rapidity with which they are grown.

TACSONIA.—A genus of beautiful climbing plants, so nearly allied to Passion-flowers that many persons have wondered at its separation from them. *T. pinnatistipula* has beautiful rose-coloured flowers. It has all the habit of the Passion-flower ; requires greenhouse culture, and grows very fast, unless starved. It has covered a small cottage front on being planted out-of-doors in the spring ; and in a mild autumn bloomed before the frost cut it down. It is propagated by cuttings, which root well in sand or the ordinary soil it grows in, which should be loam and peat in equal quantities. The cuttings, when rooted, should be potted off and only changed from small to larger pots when the roots actually fill them ; because it is desirable to check the growth as much as possible. For pot culture, they require a trellis when they begin to grow fast ; and at that time they must be put into the pots they are to bloom in. These flowers are the most

beautiful of the Passion-flower form ; and when the plant is put into the conservatory border it will half cover the place with its rosy blossoms. *T. mollissima* is a more recently introduced kind, having the same habit as the other, but richer coloured blossoms. They are admirable conservatory climbers.

HUMEA.—The *H. elegans* is appropriately named, for it is its graceful form of growth alone that renders it a favourite. It grows tall and pyramidal, and the foliage, when mature, is, as well as the flowers, of a reddish cast. The whole plant is not much unlike a pyramidal fountain ; the branches shoot out equally all round, the blossom hangs down, and there is so much grace in the form of the plant, that, without any approach to brightness, or even clearness of colour, it is a striking object. The plant is biennial. The seeds must be raised in heat in the spring, and the young plants treated all the summer as greenhouse plants ; that is, potted off when they are large enough into small pots, shifted to larger ones as they fill the pots with roots, and kept in the greenhouse, or in a cold frame, having however plenty of air. In the spring of the next year some may be planted out in a warm situation in the borders, where they will grow up from six to ten feet high. Others may be potted in twelve-inch pots, with loam and dung in equal parts for the compost. Those in pots must be regularly attended to as to water, because they will grow fast, and take a good deal of it. The producing of this plant in high style used to be considered a proof of skill in a gardener ; but it looks richer when not overgrown.

LOBELIA.—An extensive genus of very showy plants, comprising species requiring stove, greenhouse, and hardy treatment, and consisting principally of annual, biennial, or perennial herbs. For practical purposes this family may be taken to include the species of *Tupa*, which has been separated from it. Peat, sand, and loam, in equal quantities, forms a good compost for the smaller as well as the more delicate growing, and the stove and greenhouse species. The hardy perennial kinds grow in the common garden soil, though they flourish better in a rich loam. The hardy annuals may be sown in the common border, where they will do well by merely thinning them, and keeping them clear of weeds ; but they are the better for a liberal mixture of peat earth. The shrubby kinds are increased by cuttings, planted in sand, and put in a hot-bed ;

the perennials by division in early spring, the shoots being first gently excited, and then separated into single pots of the smallest size, and put in a warm frame until they are well established, when they may be hardened to bear the open air. For blooming in pots, the herbaceous kinds must be shifted into larger pots as often as they fill the pots with roots, and a very rich loamy compost should be used, with abundance of moisture. They are best kept dry, under a greenhouse stage, during winter, being very liable to rot from exposure to damp. *L. gracilis* is an annual greenhouse kind, of dwarf habit, bearing a profusion of small blue flowers throughout the summer if treated like a half-hardy annual, and planted in the open ground in May. Of the same habit are the *L. Erinus*, *L. E. grandiflora*, *L. E. compacta*, and *L. decumbens*, perennials employed for the summer decoration of flower-gardens, all bearing blue flowers in profusion, and from their habit well suited for planting close by the edges of flower-beds and borders. *L. heterophylla* and *L. ramosa* are two fine half-hardy species, of the dwarf class, and have very deep blue flowers. The perennial kinds are annually augmented by cross-bred or hybrid varieties, which are constantly giving place to new variations. Of this class, *L. fulgens*, and *L. splendens*, two old kinds, with rich scarlet blossoms, have not been surpassed; and *L. cœlestis*, and *L. densiflora*, are among the prettiest of the blue-flowered kinds; *L. speciosa* is a fine purple: these all bloom from June to September. *Tupa blanda*, pale red, and *T. Feuillei*, crimson, are distinct and handsome kinds of this section; they grow best in a peat soil, and require some protection in winter.

SIPHOCAMPYLUS.—A genus of showy plants, so closely related to Lobelias, that various species have been ranked in both genera. They are herbaceous plants, with a half-shrubby mode of growth, throwing up from the root long stems in one season, which mostly branch and blossom during the next, or bloom along their upper portion towards the close of the season in which they are produced. They require loam, peat, and sand for a compost, as in the shrubby Lobelias, and are in the same way increased by cuttings. *S. bicolor*, a greenhouse or frame kind, has scarlet and yellow blossoms in summer; *S. coccineus* has them scarlet; *S. glandulosus*, rosy-purple; and *S. manettiæflorus* is a dwarf compact kind, with scarlet and yellow blossoms. The three last named are grown in a stove.

ALLIUM.—An extensive genus of hardy bulbs, which grow freely in any common soil, and propagate rapidly by offsets. Some of the kinds are pretty, as, among many others, *A. azureum*, which has blue flowers; *A. Cowani*, white; *A. odorum*, white; *A. Moly*, yellow; they vary from one to two feet in height, and bloom early in summer.

ALLOSORUS (Rock Brake).—A pretty little tufted parsley-like fern, growing naturally on rocks, and therefore well adapted for rock-work; it is quite hardy.

ALOE.—The general family of Aloe is large, greatly varied in the forms and colours of their leaves and their habits, as well as in the colour of their flowers, which however are by no means the chief attraction; they all come in spikes, the individual blooms being tubular, the flower-stems tall in proportion to the plants, which are thick-leaved, of all shapes; some variegated, some all over spines, others covered with pearly skins, some rough, some smooth, but in a collection highly interesting. They nearly all flower from May to August. They thrive best in loam and peat, equal parts, sand and dung together forming a third part. The pots must be one-third filled with crocks, and as the plants fill them up with roots they must be changed; they propagate by suckers or offshoots, which should be taken away from the old plants while very young, to prevent them from living upon the parent, unless, as in some cases, they are being grown to fill a pot, by spreading into as large a mass as possible. The small offsets must be put into corresponding sized pots, to be shifted from time to time as they advance. Most of the species bear orange-coloured or red blossoms. Some of the smaller species, which bear whitish flowers, are now called *Apicra*, and *Haworthia*; other species are called *Gasteria*.

ALOYSIA.—A shrub, with a beautiful lemon-like fragrance. It is usually kept in pots in the greenhouse, and forced for the sake of sprigs for cutting in spring, as an addition to bouquets. The plant is hardy; at least if the branches are killed down by frost in winter, they are renewed from the root in summer. It grows in any good loamy soil, and propagates freely by cuttings. It is called *A. citriodora*, or formerly, *Verbena triphylla*; popularly, the lemon-scented Verbena.

SOLANUM (Nightshade).—This is a very extensive genus, and comprises plants greatly varied in their habits; it includes

stove, greenhouse, and hardy kinds, annuals, perennials, and shrubs, and something like a hundred and fifty kinds are recorded as having been introduced. *S. jasminoides* is a greenhouse climber, with blush-coloured flowers in the autumn months; *S. pseudo-capsicum* is the Winter Cherry, a greenhouse bush, grown for its red cherry-like berries in winter; but the best of all the Solanums, for a limited garden, is perhaps the *S. crispum*, a kind nearly or quite hardy, succeeding well-trained against a wall, and bearing a great profusion of lilac or pale purple flowers. These kinds all grow well in a good loamy compost, and are propagated by cuttings. *S. Amazonicum* is a fine stove shrub, with prickly leaves and purple flowers; it is a free grower in loamy soil, and requires plenty of pot-room, and the temperature of a stove. One of the most singular plants of this genus is the Egg-plant.

EGG-PLANT (*Solanum ovigerum*).—This is the type of a little group, which are chiefly cultivated for the extraordinary likeness between their fruit and an egg. The white and purple are both cultivated to a considerable extent as market plants, and the former is well worth the trouble. The seeds should be sown in peat in March, in wide-mouthed pots, and when large enough planted singly in three-inch pots (sixties) in loam, dung, and peat, equal quantities, and placed in a hotbed. As soon as the pots fill with roots change them to the next size, and continue them in the hotbed; the nearer they are kept to the glass the better, so that they do not touch; water them rather freely as they begin to flower, for the fruit takes up a good deal of nourishment as they swell. When the fruit sets they may be removed to the greenhouse near the glass, otherwise they will draw. If the pots fill with the roots again, give them another change; but those intended for market are merely watered with manure water, which excites them enough for that purpose. The manure water should be made with cow-dung thoroughly decomposed, a good spade full in eighteen gallons of water, stirred round two or three days before using, and diluted every time it is used; a shift, however, is far better for the plant, and therefore is recommended when we grow it for home show instead of market. The ripened fruit contains the seed for the next year.

RUSSELIA.—*Russelia juncea* is a beautiful drooping stove plant, with long pendulous branches, and bearing in summer splendid scarlet flowers, of tubular form, strongly reminding

us of large-sized barberries. This plant, if well grown, and not too rapidly advanced, has such abundance of bloom that when in flower it is the most striking object in even large collections; but if it be forced along, as has been too much the practice, the blooms are much wider apart, and the plant not half covered. Loam from rotted turf, and turfy peat, well mixed, good drainage one-third up the pot, and a heat of 65° to grow in by day, and 60° at night in the winter time, will bring the plant forward in perfection. This plant must have but one size shift at a time from the first potting into 60-sized pots, and from 60 to 48, and 48 to 32, and so on until it is in a number 4. This must not take place until the respective pots are well filled with roots; the plant ought to grow moderately fast; but if too much so, it is coarse and ugly in its growth. Cuttings root freely in sand on the top of the usual soil, and when once well established in the larger sized pots it will bear a good deal of water, but the cuttings and small plants must only be kept moderately moist; the cuttings require a little bottom heat, and a bell-glass to cover them, and this must be wiped daily. The plants hang down all round the pot, which must be placed on a pedestal in a full light, and be constantly turned that it may be all round alike.

MAURANDYA.—A genus of very handsome slender climbing plants, proper for the greenhouse or for planting in the open air during the summer. They are best raised from seeds, which, to ensure strong blooming plants, should be sown about June, and the young plants potted singly, and kept in small pots during winter in a greenhouse. These, if shifted into larger pots in February or March, will be strong and vigorous by the planting-out time—May. For the greenhouse, they merely require shifting into large pots of rich soil. They grow to a considerable size. *M. Barclayana* is the best kind; it has large purple blossoms, and there are varieties of it with white and with rose-coloured flowers; they bloom all through the summer.

ALONSOA.—A family of plants from South America, mostly evergreen sub-shrubs. There is one herbaceous perennial, which is called a frame plant. They all bear scarlet flowers, and require the commonest greenhouse treatment. In May they may be turned out towards the end of the month. They may be propagated from seeds or cuttings, sown in a common hot-bed in wide-mouth pots, and pricked out as soon as they

are large enough; a sixty-sized pot will take three plants well, pricked out at angles close to the edge of the pot; in these they may continue until they are large enough to put one in each pot, and in the centre. The pots may be changed as fast as they are filled with roots, which may be seen on taking out the balls to examine them. The cuttings may be struck in the common rich soil of a good garden border, covered with a bell-glass, and the striking is hastened with a little bottom heat. As soon as the cuttings are well rooted they may be put singly into small pots, and be removed only when these pots are too small. They should have air in winter time, when it can be done safely, and not be subjected to a damp atmosphere. *A. incisifolia* is perhaps the best of the introduced species.

PHYCELLA.—A pretty bulbous race, allied to Amaryllis. They are hardy enough to grow in a frame or pit, or in a warm dry border, slightly protected. Equal parts of loam, peat, and sand form a compost suitable to them. The general treatment of Amaryllis is adapted to them. *P. ignea*, scarlet, *P. Herbertiana*, red and yellow, and *P. brevituba*, scarlet, are showy kinds; their blooming period is rather uncertain.

METROSIDEROS.—These are greenhouse shrubs, of evergreen habit, with variously coloured blossoms, having the anther-threads conspicuous. It requires the same treatment as Melaleuca. *M. corifolia* is an elegant plant, bearing white blossoms in June.

MELALEUCA.—A family of showy evergreen greenhouse shrubs, remarkable for the beauty of their anther-threads, which indeed form the conspicuous part of their blossoms. *M. fulgens* is a rich scarlet-flowered species, blooming in June; *M. hypericifolia* is another of the same colour; *M. thymifolia* has the flowers purple. They are propagated by cuttings, and should be grown in a mixture of loam, peat, and sand, at first in small pots, and shifted on into larger ones as they grow. The shoots must be kept freely topped while the plants are young, to produce a bushy compact growth. *Calothamnus* and *Callistemon* are genera closely related to this.

CALLISTEMON.—A genus of beautiful evergreen greenhouse shrubs, related to, and requiring the same treatment as Melaleuca. *C. speciosus*, which has scarlet blossoms, is one of the most handsome kinds; it blooms in the spring

and early summer. The flowers are like bunches of coloured threads, set close together, so as to form the appearance of a bottle-brush.

CELOSIA (Cock's-comb).—The *C. cristata*, or Cock's-comb, is a favourite old annual, taking its name from the extraordinary similitude of a small head of bloom to the comb of a cock. The plants require a hotbed to grow them to perfection; and the gardener succeeds best, according to ordinary notions, who brings the flower the largest. The seeds may be sown in March in a single pot, and placed in the frame, where they are not long coming up; they may very soon be placed one in a pot, of the small size called sixties, and have a little water to settle the roots; they may now be replaced in the hotbed, and have but very little moisture, and they should be kept near the glass; by keeping them dry the plants get stunted, and the bloom soon shows. When the flower is to be seen in a miserable-looking half-starved plant, such as these will appear, no one would fancy it could be made at all passable; but we now get rich loam and dung, in equal quantities, and pot those diminutive plants single in pots, size thirty-twos, and give plenty of water, bringing the tops of the plants as close to the glass as possible, and keeping up the heat by lining with hot stable-dung as soon as it declines, but the plants must not absolutely touch the glass on any account. The plants will rapidly grow, and the flower-heads get larger, until they are too large for the pots, which must be then changed for larger sizes as the roots fill the smaller. If the plants were grown as fast as we could grow them from the first, they would be eighteen inches or two feet high before the flowers appeared, because rapid growth is unfavourable to flowering, but by starving them till they show the flower they do not grow much afterwards, except in size. The flower-head, or comb, will be enlarging from day to day, and will come very perfect specimens with care and attention.

CHIMONANTHUS (Japan Allspice).—There is one species of this genus, *C. fragrans*, and of this there are three varieties, one or the other of which ought to be in every garden for the sake of the delicious aromatic fragrance of the blossoms produced on the leafless branches in the dead of winter; the flowers of all the varieties are of some dull shade of yellow, not showy, in the common acceptation of that term, but their fragrance is charming. They are free growing

shrubs in moderately good soil, and require to be planted by and trained to a wall; they must be pruned, so as to preserve annually as much of the young wood as can be trained in at about six inches apart; the rest may be spurred in. As the blossoms are developed in December and the succeeding months, it is desirable to screen them from any nipping frosts that may occur at that season. It is a shrub in every way suited to train about the windows of a dwelling. Young plants are obtained by means of layering, and they require a little extra protection when young.

NOLANA.—The Nolanas are pretty annual plants, of prostrate habit, with convolvulus-shaped blossoms, of a blue colour. They may be sown in the open ground in April and May, or an earlier crop, in pots for planting out, may be sown in March, and the plants kept in a cold frame till the middle of May. They will flourish in ordinary garden soil. *N. atriplicifolia* has blossoms of the colour and size of those of the convolvulus minor; those of *N. paradoxa*, and *N. prostrata*, are entirely blue. They bloom, according to the season at which they were sown, from June to October.

YUCCA (Adam's Needle).—Fine exotic-looking plants, of which some are hardy, and others require some amount of protection. They are aloe-like, with long narrow leaves, some growing up with an erect stem, which in time becomes forked, and others being almost stemless, the leaves growing close to the ground. The flowering stem in all is erect, bearing a close panicle of large cream-coloured, drooping, tulip-like blossoms, which come out about the latter end of summer—from July to September. The most distinct among the hardy kinds are *Y. gloriosa*, *Y. filamentosa*, *Y. recurva*, and *Y. angustifolia*, the first being of tree-like habit, the two next herbaceous, and the last with remarkably narrow leaves. *Y. aloifolia* is a tall-stemmed species, requiring a cold greenhouse. They all grow in loamy soil, and the hardy kinds have a fine effect planted sparingly in prominent positions on rock-work.

IMPATIENS (Touch-me-not).—Annual plants, most requiring artificial warmth, and to be treated like the garden balsam, (*Balsamina*,) to which, in fact, they are intimately allied. The common *I. Noli-tangere* is a hardy annual, with yellow flowers; it grows naturally by the water-side. Some other species may be grown in the open air like the half-hardy annuals, the best of which kinds is the *I. glanduligera*, which

has purple flowers, and is of a fine pyramidal habit of growth in moderately sheltered situations.—See *Horticultural Magazine*, Part 11.

CEANOTHUS.—A family of evergreen shrubs, nearly hardy, and particularly suited for planting against a wall. They are mostly of free growth and neat habit, and the flowers are numerous, and of a showy character. The plants are propagated either by cuttings, which should be planted in sandy soil under hand-glasses, or by layers, which is the readiest way of obtaining strong plants. These plants may be planted against a wall or close fence, and the principal branches being trained over the surface, a considerable space will soon be covered by the numerous evergreen branches which it produces when growing freely. They are not very particular as to soil, but being not perfectly hardy the situation ought to be a well-drained one. *C. azureus*, whose blossoms are bright blue, and *C. thyrsiflorus*, which is a paler kind, are among the most distinct and handsome of the familiar kinds.—See *Horticultural Magazine*, Part 19.

SCILLA.—A genus of bulbs, for the most part hardy, and ranking among the prettiest ornaments of the early spring. They are far too much neglected in gardens, though of the easiest culture, and very gay appearance at a season when flowers are scarce. They grow very well in any moderately good garden soil, but have rather a preference for soil containing a considerable portion of peat-earth ; this is especially the case with several of the smaller kinds. They multiply rapidly by means of offsets, and their culture is very simple, for they merely require planting in the autumn, the bulbs being placed from two to four inches under ground, according to their size, and they may then remain year after year, the patches of bulbs increasing in size, until it is required to form new plantations. Except for this purpose, or for the sake of increase, the less they are disturbed the better. There are something like three dozen species recorded as being in cultivation, from which, for ornamental purposes, the following may be selected:—*S. præcox*, blue ; *S. bifolia*, blue, pink, and white varieties ; *S. sibirica*, bright blue ; *S. amœna*, blue ; all small dwarf plants, and blooming in succession from February till April : *S. campanulata*, blue, white, and pink varieties ; and *S. italica*, pale blue, both of larger size, and blooming about May.

LINUM (Flax).—This genus consists principally of annual

or perennial herbs, growing freely in ordinary garden soil, and propagated chiefly by seeds, which are readily perfected. There are some shrubby kinds, of which the most interesting is *L. trigynum*, a greenhouse bush, with large orange-yellow flowers, produced generally very early in spring; this grows in a compost of two parts peat and one of loam, with enough sand added to make it open. *L. flavum* is a showy dwarf suffruticose species, very nearly hardy, producing its yellow blossoms for a considerable period in summer. This, with the next, *L. monogynum*, a perennial white-flowered kind, is best protected in a frame during winter. *L. angustifolium*, *L. nervosum*, and *L. sibiricum*, are hardy perennials, with blue flowers, blossoming in June and July. The cultivated flax, *L. usitatissimum*, is a pretty annual, with blue flowers.

CYSTOPTERIS (Bladder-fern).—A very pretty genus of small growing ferns, with delicate annual fronds, of from three to twelve inches in height. They grow well on rock-work, or in pots among turfy soil, intermixed with lumps of brick or free-stone, and well drained. They are multiplied by division of the plants.—See *Moore's Handbook of British Ferns.*

ERIOSTEMON.—One of the prettiest families of greenhouse shrubs, but possessing considerable similarity in the appearance of the blossoms, though not in the general aspect of the different kinds. The flowers are what may be called star-shaped, and they are white, more or less tinged with a rosy hue, especially when in bud, and in the early stages of development. They are compact growing shrubs under good management; but to form handsome plants it is desirable to allow the leading shoot to grow up uninjured, and the plants then assume, with a little skill in managing the lateral branches, a perfectly pyramidal form, which is their natural habit of growth. There are about a dozen species cultivated, of which the most desirable kinds, for a limited collection, are *E. buxifolius*, which has small box-like leaves; *E. cuspidatus*, which has large lance-shaped leaves; and *E. intermedius*, in which the foliage is intermediate. The blooming time is from April to June, and the blooms are disposed all along the branches. They require the general treatment of *Boronia.*

MIMOSA.—This large family contains the sensitive plants most commonly seen in hothouses; these are, *M. sensitiva* and *M. pudica*, two stove-shrubs, the foliage of which is endowed with a very remarkable and interesting sensibility, and for

which property the plants are cultivated. The flowers of both are purple—little globular balls of coloured threads—not at all showy; but the leaves are very elegant, and the peculiarity which obtains for them both their name and popularity is the shrinking of the branches and folding up of the leaves at the slightest touch of the finger, or even a puff from the mouth. If a limb be touched it falls down, and the leaflets close; but if the whole plant be shook or jerked, all the leaves close and hang down directly. The seeds are sown in a hot-bed in March, and potted off, as soon as they are large enough to handle, into small-sized (sixties) pots in the ordinary soil for heaths or Botany-Bay plants. They must be kept in heat till June, when they may be placed in any part of the stove, or in a warm greenhouse. They are pretty looking plants, but are only grown as a curiosity. They may be shifted from small to larger pots: they seed freely enough, but when they are grown for seed they are sown in February, potted off in March, and are in full flower and seeding long before those sown in March. *M. sensitiva* is not so irritable as *pudica*. There are many other Mimosas, chiefly shrubs of little interest.

THEA (Tea-tree).—This is a genus closely related to the *Camellia*, having, like that, large leathery leaves, but not producing conspicuous flowers. The plants are interesting in gardens from their commercial associations. *T. viridis* is the principal source of the best teas; *T. Bohea* furnishes an inferior quality; *T. assamica* is a stronger growing species, whose quality seems to be as coarse as its appearance. These plants form pretty evergreen shrubs, something like *Camellia japonica*, blooming about as large as pear-blossoms. *T. assamica* is tender, requiring a cool stove; but the other two are half-hardy. The treatment of these shrubs is like that of the Camellia. They are propagated by cuttings, struck from the last year's wood, with two joints, one put underground and one above, the one to root, the other to form the tree; but as these are not wanted in great number in England, being only grown for curiosity, the ends of shoots are taken so as to form a pretty little plant directly it grows. They are also raised from seed, by sowing in pans, and placing them in the greenhouse till they come up, when they may be first pricked out, three or four in a pot, and then potted one in a pot, which has to be changed to larger ones as they grow.

PAVIA.—A division of the Horse-chestnut family, consist-

ing of some few handsome flowering trees of the smaller class. They grow in any garden soil, and are usually increased by grafting on the common horse-chestnut. *P. macrostachya*, with spikes of white flowers, and *P. rubra humilis*, with red blossoms, are of shrubby habit, and are the best and richest for a small garden.

CHÆNOSTOMA.—The *C. polyantha* is a very pretty plant for the decoration of the flower-garden during summer; it is a half-hardy plant, requiring to be kept during winter in a greenhouse, or in a dry frame, secure against frost, and in summer may be planted out in a warm sunny situation, in light moderately rich soil. It is readily raised from seeds, and may also be increased by cuttings. The flowers, which are small and numerous, are of a rosy-lilac, with a dash of yellow about the eye.

FEDIA.—A small genus of hardy annuals, of which one or two are pretty objects. The best kind is *F. graciliflora*, a showy branching plant, growing about a foot high, and bearing a profusion of oddly-shaped lilac or pinkish-coloured flowers. If sown in pots about March, and planted out subsequently, the plants come into bloom in June; but if sown in the open ground in April they will bloom in July. In either case they continue in flower for some time in succession. Planted moderately thick, this Fedia forms a good bed-plant. It grows in any moderately good soil.

RIBES (Currant).—This is an extensive family of hardy shrubs, well suited for shrubberies. The very best, which grows freely in ordinary garden soil, is the *R. sanguineum*, a deciduous plant, which about May is decorated with drooping bunches of scarlet blossoms. Of this there is a very handsome double-flowered variety, and another in which the blossoms are white; these have the habit of the common currant-tree. Another very pretty kind, but best adapted for training against a wall, is *R. speciosum*, which has scarlet drooping blossoms, something like those of a Fuchsia; this is a thorny kind, with the appearance of a gooseberry. *R. aureum præcox* is a very desirable yellow-blossomed early kind. They are propagated either by layers or by cuttings, without difficulty.

CUPHEA.—The species of this genus in cultivation are of very various characters; some are shrubby, others are herbaceous perennials, and some are annuals. Of the hardy annual kinds, *C. silenoides* and *C. viscosissima* are pretty subjects,

blooming from July onwards, with purplish variegated flowers; they are of dwarf spreading habit. *C. platycentra* is an almost ever-blooming shrubby species, a greenhouse plant, but well suited for the flower-garden during summer, where its profuse bright scarlet tubes, just tipped with a ring of black and white, become very conspicuous. This species grows well as a pot-plant, in a compost of peat and loam, and is propagated by cuttings: it scarcely grows more than a foot high in the course of a season; but the larger the plants are, the better they look; so that the old plants should be preserved.

PHACELIA.—Pretty annuals, for the most part. *P. tanacetifolia* grows a foot and a half or more in height, branching freely, bearing much-cut leaves, and scorpoid heads of blue-lilac flowers, from June to October. It is of the easiest culture in the open ground, the seeds being sown in March and April.

MYOSOTIS.—This genus contains the Forget-me-Not, *M. palustris*, a plant which, though indigenous to this country, and common enough by the sides of ditches and streams, yet thrives well under cultivation in situations moderately moist, and becomes very pretty. Its blossoms, borne in scorpoid racemes, are of a very delicate pale blue, with a golden eye, and are produced all through the summer. It is of the readiest growth, in any situation where a supply of moisture can be given to it. *M. azorica* is a greenhouse species, with dark blue flowers, produced in June and July; this grows freely in a mixture of turfy peat soil and loam, and is increased by cuttings.

ADENOPHORA.—Allied to the Campanula, and a very pretty family of herbaceous perennials for the open border; growing freely in common soil, and propagated readily by division. The colour of the blossoms of most of the species is pale blue; and they are produced from May to August, in one or other of the species. *A. verticillata* flowers in June.

AOTUS.—A pretty genus of greenhouse shrubs, with butterfly-shaped flowers, requiring the same general treatment as Chorozema. *A. villosa*, and *A. gracillima*, are desirable species; the flowers, some of the shades of yellow, are produced in May.

ASTEPHANUS.—A genus of evergreen twining plants, requiring a greenhouse. The species *A. linearis* and *triflorus* have white flowers in July, and grow about four feet high.

They require a compost of turfy peat and loam in equal parts, and are propagated by cuttings.

ARISTEA.—A genus of greenhouse perennials, with narrow sword-shaped leaves; all the species bearing blue flowers. They may be grown in a mixture of turfy peat and loam, three-parts of the former to one of the latter; and are propagated by division of the plants, or by seeds when these are obtainable. *A. cyanea* blooms in June.

BORBONIA.—A genus of greenhouse shrubs, evergreen, and bearing butterfly-shaped flowers, which are mostly yellow. Though pretty, it is not a very common genus. They require peat and loam as a compost, and are propagated by cuttings under bell-glasses, in sand.

BORONIA.—A very interesting family of greenhouse plants, of which *B. serrulata, B. crenulata, B. pinnata,* and *B. alata,* are the most familiar; and *B. serrulata* has been the most extensively of all grown. Not only is it in high estimation as one of the best show plants, but largely cultivated as a gay and elegant market plant. No greenhouse selection, however limited and choice, would be perfect without *B. serrulata;* it would come in with the best dozen that could be selected of all the greenhouse plants. The plant is shrubby; the foliage very close up all the stems and branches; and the flowers, of a rich rosy-pink colour, come out at the ends of every shoot. Sandy loam one part and turfy peat two parts make an excellent compost; and the cuttings taken from the ends of the shoots strike freely under a bell-glass in the greenhouse. The pots should be prepared with half-an-inch thickness of sand at the top of the soil. The leaves should be cut off (for if they are stripped, they damage the bark,) the lower end for half an inch, and then stuck in the sand, (which should be well wetted,) so as to touch the compost, but not enter it. Here they will require the glasses wiped dry every morning; and when the cuttings begin to grow, the glasses may be removed an hour every day. These cuttings, when struck, should be planted singly in sixty-sized pots, which are three inches across, one-third of the pots being filled with broken crocks, or potsherds, to secure a good drainage. As these small pots are filled with roots, they may be exchanged for larger ones, without disturbing the ball of earth or the roots; and if the object is to keep the plants short and bushy, take the top off to encourage lateral shoots, and as these get long take them off

also ; but the plant naturally grows very handsome and pyramidal, with enough lateral shoots to form a very handsome flowering shrub. The plant must have plenty of air in mild weather ; but if put in the open ground and left to take its chance with other greenhouse plants, and neglected, it is apt to become discoloured in the foliage, which is rarely recovered. They are, in fact, as miffy as heaths, and if the watering be neglected, the effect is almost immediately seen. One watering too many is pretty nearly as bad as one too few, therefore, they ought not to be watered by rule ; they ought to be examined every twenty-four hours. If they are damp, they require no watering for that day ; but if otherwise, they do require it. When they are watered, all the compost must be wetted ; not merely half-an-inch of the top, for that is useless. All the genus is pretty and worth growing in collections ; they bear rose-coloured flowers, which are produced in the spring and early summer.

BOUVARDIA.—A genus of small shrubby plants. Some of the species produce a profusion of scarlet blossoms, when planted out for the summer, in a bed of good peat earth in the flower-garden. *B. triphylla*, and a variety of it called *splendens*, are of this habit, and particularly adapted for this purpose. The roots must be taken up in autumn, and potted and kept rather dry in a greenhouse ; and in spring excited in a dung frame, and hardened off afterwards to plant out as soon as danger from frost is passed. These kinds are best propagated by pieces of the thicker roots, an inch or two long, set round against the side of a pot, just covered with soil, and the pots plunged in a dung-frame. When they begin to grow up, they should be potted separately ; they grow well in a compost of turfy peat and loam. *B. flava* bears pretty yellow flowers towards the end of the summer, and is a handsome greenhouse shrubby plant ; *B. longiflora* has the flowers white, and is rather more tender, and very scarce.

AMARANTHUS.—A genus of annual plants ; the more hardy species of which only require to be sown in the open borders in April, and the plants thinned out to six inches asunder. Of this character are *A. caudatus*, (Love lies bleeding,) and *A. hypochondriacus*, (Prince's feather,) two of the best, which are well known and mostly admired for their rich spikes of crowded crimson flowers ; in the former, drooping ; in the latter, erect ; and produced in the latter pa

of summer. Their appearance is improved by growing them in moderately rich soil.

BULBOCODIUM.—A genus of beautiful dwarf hardy bulbous plants, growing best in sandy loam, and increased by offsets. *B. vernum* and *B. versicolor*, both have purple flowers, shaped like those of a crocus; the former in February, and the latter in August.

BURCHELLIA.—Evergreen shrubs, requiring a temperature intermediate between the stove and greenhouse. *B. capensis*, which is most commonly grown, has light red tubular flowers in spring and summer. Loam and peat, of open texture, forms a proper compost for them; and they increase by cuttings, in sand, in a gentle heat.

ADESMIA.—One of the many yellow butterfly-flowered families. In this, most of the species require a greenhouse; two or three grow with slight shelter; and one—*A. viscosa*—is hardy. They are shrubs of somewhat trailing habit, growing in a mixture of loam and peat, and propagated by cuttings. *A. Loudonia* is a pretty greenhouse shrub; bearing yellow flowers in July.

AGATHOSMA.—A genus of greenhouse shrubs, closely related to *Diosma*, and requiring precisely similar treatment. *A. purpurea*, and *A. Ventenatiana*, are showy purple-flowered species; the flowers are small, grow in dense heads, and are produced in May.

AGAVE (American Aloe).—The *A. americana* is an aristocratic looking plant, often seen in pairs before the villas round the metropolis; and is *said* to bloom once in a hundred years; it, in fact, blooms but once. It is always treated as a greenhouse plant, and nobody cares about its flowering, because that finishes its career. There is hardly a more noble looking plant; but the flower, which has disappointed thousands who have seen it, is more interesting than beautiful. It throws up a stem which grows perhaps fifteen or twenty feet high, and this throws out horizontal branches full of flowers, which stand upright, and are neither yellow nor green, but each colour appears to struggle for the mastery. The plants fully grown in adequate tubs look truly noble; and if we possessed a handsome pair, we should be sorry to see them indicating bloom. The idea of flowering once in a hundred years is a popular delusion. There have been many plants known for many years, and not known to bloom; so that there have been

no very public contradictions to the supposed distant period, and, therefore, the mistake still obtains credence. It will grow well in half loam, a fourth of rotten dung, and a fourth brick rubbish or broken flower-pots; it should have plenty of room in the greenhouse, and be out on the lawn from the first of June to the first of September. If treated as a stove plant, it does not grow so handsome, but blooms earlier.

BRODIÆA.—Pretty, slender, but rather tall growing bulbous plants, that may be grown in pots in a frame; they may be potted in any light rich soil. The flowers are blue or purple. There are three kinds, *B. grandiflora, congesta,* and *californica,* which bloom in summer. They are propagated by offsets.

BROUSSONETIA.—*B. papyrifera* is the Paper Mulberry. It is a deciduous tree, with singular lobed leaves, growing well in ordinary garden soil, and is kept in gardens on account of the curiously formed leaves.

AMPHICOME.—One species, *A. arguta,* is an elegant plant for a frame or conservatory, bearing rosy-lilac tubular blossoms in July and August. It thrives in sandy loam and peat, and is increased by cuttings planted in sandy soil, and placed in a mild heat.

AMSONIA.—Curious hardy perennial plants, not remarkably showy. Their flowers are small and blue, and produced about June. Their culture is very simple. *A. latifolia* is perhaps the best.

CALYCANTHUS.—These are hardy deciduous shrubs, remarkable for the fragrant spice-like odour of their brownish blossoms. They grow readily in any loamy garden soil, and are increased by means of layers. *C. floridus* is the Carolina Allspice; it has singular but highly-fragrant brown flowers about June.

BEGONIA (Elephant's-ear).—The leaves of this tribe of plants are for the most part ear-shaped; many of them are red underneath, some are red veined; they are for the most part stove plants, very few greenhouse. They are a somewhat coarse looking plant in flower, for the bloom is not very striking; their principal recommendation is that they are always in flower while growing, and some of the more recently introduced sorts are interesting, and have larger flowers. Cuttings may be struck in the ordinary soil, under a glass, in a hot-bed, or the propagating-house, or in a vinery. The flowers are

mostly pink or white, or something between them. When the cuttings are struck, they should be transferred to pots (forty-eights), with a compost of two-thirds loam and one-third peat and dung, and be placed in a hot-bed, or the stove, or any other house or pit heated stove-fashion, as they want heat. As they grow larger, and fill their pots with roots, they must be changed for others of a larger size, and so on as long as they keep growing and filling the old ones. The same may be observed with regard to those of the greenhouse kind, the only difference of treatment being in the temperature of the house. The Begonia is in more repute than we think it deserves to be. However, some of the species are very pretty when well grown: the best are, *B. manicata*, *hydrocotylifolia*, and *ramentacea*, pink; *B. coccinea* and *fuchsioides*, scarlet; *B. argyrostigma* and *parvifolia*, white; some of which should be almost constantly in flower. The common *B. discolor*, with pink flowers in June, often seen in parlour windows, dies down entirely in winter, and requires then to be set away perfectly dry till the spring, when it should be again watered, and placed in a warm situation to excite it into growth.—See *Horticultural Magazine*, Part 21.

BEJARIA.—A genus of beautiful evergreen greenhouse shrubs, which have been scarcely known in cultivation; but as some highly promising kinds have been recently introduced, they may be expected soon to become more familiar. *B. coarctata* is a pretty species, having heads of pink flowers early in spring. They require the same kind of treatment as the Indian Azaleas.

BELLEVALIA.—Handsome, hardy, lilaceous bulbs, growing in common soil, and propagated by offsets. *B. operculata* has white flowers in May.

BELLIDIASTRUM.—A very ornamental dwarf hardy herbaceous perennial, with white daisy-like flowers in June: *B. Michelii*. It prefers loam and peat as a compost for its roots, and is increased by division.

ARCTOSTAPHYLOS.—Dwarf shrubs, growing in peat-earth, and increased by layering. Two species are evergreen, and two are trailing shrubs. *A. uva-ursi*, a trailing evergreen, has white flowers in April. They require the same treatment as *Arbutus*.

ARDUINA.—*A. bispinosa*, a greenhouse evergreen shrub, is a singular plant, the branches being furnished with numerous

forked spines; the foliage is neat, and the flowers white and pretty, produced in June and July. They should be grown in carefully drained pots of peat and loam, mixed in equal proportions.

ARENARIA.—A genus of diminutive, herbaceous, perennial, and annual plants, of the easiest culture in common soil; the perennial kinds increased by division, and the annuals by seeds. *A. balearica*, a dwarf plant, with showy white flowers, is one of the best for pots and rock-work; it blooms in July.

AMELANCHIER.—Gay flowering bushes, or small trees, of deciduous habit. *A. Botryapium*, is the Snowy Mespilus, a very ornamental small tree, adorning the shrubberies in the early spring. The trees grow freely in common garden soil, and increase either by seeds or layers.

BUDDLEA.—Evergreen shrubs, some hardy, others greenhouse, and others requiring a stove. *B. Neemda* is a beautiful stove species, with white flowers in June; *B. Lindleyana* is a very nice plant, requiring the protection of a wall, or a cold greenhouse, and has purple flowers, borne towards autumn, in long racemes; *B. globosa* is a fine hardy shrub, with orange blossoms, borne in May, in globose heads. They all grow freely in a lightish loamy soil, and may be propagated by cuttings or layers.

BROWALLIA.—Two species of this genus are pretty greenhouse annuals, easily cultivated in any light rich soil; they are called *B. demissa* and *B. elata*, and of these there are blue and white varieties, which bloom towards the end of summer. A greenhouse shrub, *B. Jamesoni*, has rich orange-coloured blossoms in June and July; it is easily grown in a compost of peat and loam, intermixed in equal proportions, and propagated by cuttings, placed in a gentle heat. The annual species propagate by seeds.

CACALIA.—Of this genus, many of the species of which are curious succulent plants, two pretty annual species, reaching a foot or so in height, are grown—*C. coccinea*, with orange-scarlet blossoms, and *C. aurea*, of which the blooms are of a paler orange colour. The seeds may be sown in the open borders in April, and the plants come into bloom during summer. The succulent species grow in sandy loam and brick-rubbish, and need but little water; the cuttings of the stems strike root most certainly after being partially dried before planting.

DAHLIA.—This brilliant family of autumnal flowers requires good rich soil, a moist situation, and annual propagation from the tubers. For ordinary gardens, when there is no great increase required, the tubers may be placed in any warm situation,—a hot-bed for instance, or a warm kitchen or other apartment,—about the month of March, and in a few days the eyes or places where they will grow, appear. As soon as they all show, you may separate the tubers into as many pieces as you want, with at least an eye to each piece; each of these pieces may be put into a common flower-pot, and be placed in the greenhouse, or dwelling-house, or a common frame, or any place that the frost can be kept from, and they will begin growing. In potting these, the tubers may be freely cut to lessen their size, for the convenience of using moderate sized pots. Those who want to increase them very much may pot the whole tubers and put them in a a hot-bed, and as fast as any shoots come two inches long, cut them or break them off; pot the cuttings singly in the smallest sized pots, and put them in the hot-bed to strike. These plants may be put in the open ground about the middle of May, in the places where they are to remain; and as they draw earwigs together more than any other plant, inverted flower-pots should be put on the stakes to which the plants are fastened, with a little moss in them; by examining these pots frequently, earwigs will be destroyed in incredible numbers. The plants should be six feet apart, and they must be tied up as they grow, or the wind will break them down. Seed may be sown in April in a hot-bed, and the young plants potted and kept growing till the middle of May; they may then be planted in rows two feet apart in the row, and three from row to row. The florists' varieties have been obtained by years of crossing and seed-sowing from the species called *D. variabilis*, and are now almost endless in variety of colour, and varying in height from three to six feet.

In the pronunciation of the name *Dahlia*, the sound *ah* and not *ay* should be used—Dāhl-ĕ-a.—See *Horticultural Magazine*, Part 36.

HELIOTROPIUM (Heliotrope, or Turnsole).—The Peruvian Heliotrope (*H. Peruvianum*) is a great favourite in flower-gardens; it bears grateful smelling blossoms, not of much show, but prized for their perfume alone, which is generally compared to that of "cherry-pie." This species is, strictly

speaking, a greenhouse low shrub. The unblooming shoots will strike freely in loam, dung, and peat, under a hand-glass, even in the common borders, but more readily with slight warmth. When they are well rooted, they may be potted into small pots and placed in a cold frame or into the greenhouse, where they may grow till their roots come through the bottom of the pots and then be changed into those of a larger size. If the plant grows too tall, cut it down; the lateral shoots will come stronger for it. If these plants are intended for beds and borders, they should be planted at once from the cutting-pot, if there be no danger of frost; but they must not be put out till the middle of May. The plant may be considerably dwarfed by taking the tops off plants after the shoots have grown pretty near their full length before flowering; for the bloom in this case will show before the cuttings have grown two inches. There are many species of this genus, but none worth the flower-gardener's notice except the above well known fragrant species, which is in general cultivation. Of this there are now some varieties produced; one called "Voltaire's Heliotrope," or "Voltaireanum," has the flowers dark purple, the original being a lilac; this variety is a very distinct and desirable plant. A larger lilac-flowered variety is called "Triomphe de Liege." Both for flower-beds and for bouquets, the Heliotrope may be considered indispensable. They bloom all through the summer and autumn. The seed of all the other kinds may be sown in March, in a wide-mouthed pot, and placed in the greenhouse; they may, when large enough, be pricked out three or four in a pot, and as they advance, potted singly or planted out-of-doors, where they are to remain all summer.

PASSIFLORA (Passion-flower). — This is an extensive family of very showy plants, all climbers; some stove plants, some greenhouse, and some hardy; but all very beautiful. There are also some deciduous and others evergreen. *P. cærulea* is considered hardy, and is a deciduous climber, of which there are some seedling varieties, merely differing in the quantity of blue and white of which the bloom is composed. *P. cærulea racemosa*, a hybrid, with purple flowers, is a very fine greenhouse kind; and the most showy of the many stove kinds are probably the following:—*P. kermesina*, crimson; *P. racemosa*, scarlet; *P. Loudonii*, scarlet; *P. amabilis*, scarlet with white rays. There are some which bear consi-

dible fruit, such as *P. quadrangularis,* or the granadilla; *P. edulis* and *P. laurifolia.* These fruits are edible, and are said to be fragrant, cooling, and pleasant; however, according to our notions, other fruit must be scarce to render these of any value. They are best planted in a stove or warm conservatory and allowed to grow along the rafters. The hardy sorts grow on a south wall or front of a house. They should all be grown in loam and peat. Some of the choice sorts, such as *P. Loudonii, P. kermesina,* grow well in pots, and want plenty of trellis to grow on, as they only flower when the plant has made considerable growth. All the species strike freely from cuttings in sand and with bottom heat, and when well rooted require to be grown in small pots, and to be changed as they advance. They require a moderately rich soil to bring them to a vigorous and finely bloomed condition; and when grown in pots, weak liquid manure is very beneficial to them during their blooming period. They generally bloom in summer.—See *Horticultural Magazine,* Part 8.

ŒNOTHERA (Evening Primrose).—A showy family of dwarf plants, with comparatively large flowers of bright yellow, purple, or white; of a cup-like form, and plenty of them, succeeding each other for a long time. The annuals require the most common treatment; sow them where they are to flower, and thin them when they come up, or sow them in a patch and plant them out; any soil will do. The biennial and perennial kinds should be sown in patches, and planted out when they are large enough, wherever they are to bloom. There are more than seventy mentioned in the catalogues, but the best are—of the annuals; *Œ. tetraptera,* white, June to August; of the biennials, *Œ. biennis,* and *Œ. grandiflora,* yellow, June to August; of the perennials, *Œ. macrocarpa,* yellow, June to August; *Œ. Drummondii,* yellow, August and September; *Œ. speciosa,* white, June to August. Most of the old-fashioned annual Œnotheras are now called *Godetia.*

MALOPE.—A genus of fine showy mallows—for such in fact they are—consisting of two or three allied forms. The popular one is *M. trifida,* an annual growing about a couple of feet high, and bearing large showy crimson blossoms about July and August; there is a variety called *grandiflora,* which is supposed to produce larger flowers. It is of very simple culture. The seeds may be sown in March, and again in

April, in the open border; the plants being thinned out when large enough, leaving about three of the strongest in a patch. Or to get them earlier than usual, they may be sown in pots along with half-hardy annuals, and planted out as early in May as the season will admit.

ESCALLONIA.—A genus of small shrubs, of which one or two species are useful for covering out-door walls in moderately sheltered situations; they should only be planted where the soil is well drained and porous, and not so rich as to excite luxuriant growth. They are evergreens; *E. rubra* has small leaves and red flowers, and *E. montevidensis* bears large panicles of white blooms, both appearing about August. *E. macrantha* is another fine evergreen species, with red flowers, and is supposed to be hardy; but this is not yet (1849) proved in the climate of London, though it has borne uninjured for three years that of Devonshire. They are increased by layers and by cuttings, and grow well in any moderately good soil.

THUNBERGIA.—An interesting family of climbing plants, chiefly requiring stove culture, and thriving best in a compost of loam from rotted turves and a little sand. *T. alata* and its varieties are best raised from seeds, and treated like tender annuals, such as the balsam; only they require a trellis, on which to train their branches. The orange-coloured variety called *T. alata aurantiaca* is the best, this having deep orange blossoms, with a black centre; the white, *T. alata alba*, with white flowers and a black centre, is also very pretty, and there are several others. The colour of the original *T. alata*, itself a very showy plant, is buff-yellow, with a black centre. The varieties all bloom throughout the summer, and may be grown at that season out-doors in sheltered places, preferring moist peat soil. This as well as the other species strike freely; and cuttings in sand under a bell-glass with a little bottom heat are rooted in a short time. Let these be potted off in the smallest sized pots, and any stray bloom-buds be picked off, until the plant has grown to some figure or size that warrants its being flowered, because blooming takes away the strength a good deal, and the plants are better grown quickly than otherwise, which indeed appears its natural disposition. As soon as the small roots grow through the bottom hole of the pot, let them be changed for a size larger, and the end of the main shoot may be taken off, to force lateral branches. When they have been shifted in the pots size thirty-two, you may

put some kind of trellis to the plants, and carefully guide their tender shoots to cover it; all this time they are to be in the stove and near to the light. Let them frequently have the benefit of syringing over the foliage, and continue to pick off the flower-buds till the plant has covered the trellis as much as you want; they may then be allowed to open. The seeds may be sown in March, in wide-mouthed pots, and as soon as the plants are large enough, potted off into the smallest sized pots, to be treated the same as the cuttings were. — See *Horticultural Magazine*, Part 33.

DEUTZIA.—Handsome hardy shrubs, three or four kinds being known in gardens. The best is *D. scabra*, a very pretty bushy hardy plant, bearing white flowers in racemes, in the month of May; and from its abundant and free bloom when young, it is well adapted for pot culture and for forcing. It is propagated by suckers, (which come up from the root in great plenty, amounting almost to annoyance,) and by layers; the latter, perhaps, bloom earlier and somewhat more freely than plants from suckers, which are more apt to ramble. It is only necessary to cut away part of the wood at the place intended to be layered, or to tongue it or notch it to interrupt the free flow of the sap, and to peg that part down three inches clear below the surface; water freely, and the layers will throw out roots by the next season, when they may be removed, together with any suckers that may be found among the plants, and planted a foot apart from each other in beds; cut them down to about four inches high, and take care that the beds are such as would be made for American plants, or, at least, that there is a mixture of peat earth in it. Here they may grow a whole season; or, if preferred, they may be all potted in size forty-eight, and be placed in frames. In the first growth they make after this, the too vigorous branches must be checked and the form of the plant be regulated a little. They may then be forced the next season, or be planted out where they are to stay. If kept in pots, they must be changed from small to greater, just as the sides of the present ones are reached by the fibres of the plant; though they may as they get larger be never the worse for being a little starved. This plant is also valuable for planting against ornamental walls; for which object the plants have only to be put out in any ordinarily good soil, and require little more attention, beyond occasional pruning or training. Plants for forcing must be

prepared in pots, and kept in store, like roses and other hardy subjects used for that purpose.

LOPEZIA.—Old-fashioned annuals, of rather straggling growth, but forming a branchy mass eighteen inches high, and very pretty when in flower; their blossoms are red, and are produced through July and August. They may be sown in March and again in April, where they are intended to bloom. *L. racemosa* and *L. coronata* are the sorts usually grown.

CATANANCHE.—This genus contains one hardy perennial species, worth planting in mixed flower-borders: it is the *C. cærulea*, of which there is a white variety, both blooming in August. They are very free-growing plants, requiring only the ordinary management of hardy perennials; they are, however, best propagated by seeds.

OXALIS (Wood-sorrel).—This is a very extensive and a very varied genus. The majority are bulbs from the Cape of Good Hope and South America, and well suited for pot culture in the greenhouse. Most of these, however, will grow in a warm, dry, sheltered border, in the flower garden, especially if protected during winter by a covering of some dry, open material, such as saw-dust, or half-decayed leaves. The best plan of all is to plant them out in a bed made up in a frame or pit, and covered with glass. They thrive in equal parts peat, loam, and leaf-mould. Of this set, *O. versicolor*, white and red; *O. cernua*, yellow; *O. grandiflora*, white; and *O. speciosa*, purple, are some of the many worth growing. Another bulbous set is quite hardy: these need only to be planted out in a bed, and allowed to grow as they please for several years. The soil should contain some proportion of peat and leaf-soil. Among these, *O. violacea*, light purple; *O. Deppii*, rosy lilac; and *O. crenata*, yellow, are good examples. The fleshy taproots of *O. Deppii* are cultivated as a delicate esculent; and the tubers of *O. crenata* are also sometimes grown for the same purpose; the leaves and stems of this latter kind forming a substitute for rhubarb stalks and sorrel, in domestic cookery. When cultivated for their produce, they must have a very rich soil. Of the ornamental kinds there are some which have short, fleshy stems, which just serve to elevate a dense tuft of leaves and blossoms above the soil; *O. carnosa*, having yellow flowers, and *O. floribunda* and *O. lasiandra*, having rose-pink blossoms, are very pretty subjects of this class. Of these *O. floribunda* has been proved a valuable flower-garden plant,

incessantly blooming through the summer. These should have a free, open, peaty soil, whether planted in pots or in beds; and they may be wintered in a cool greenhouse or dry frame. There are some hardy annual species, and some few stove shrubs. The bulbous kinds are increased from the offsets; the fleshy stemmed kinds by division; the annuals by seeds; and the shrubby kinds by cuttings.

ULEX (Furze).—Every one knows the common form of this wild, prickly shrub, with its golden blossoms, "unprofitably gay." Even this plant has few rivals in the wilderness scenery sometimes added to modern pleasure grounds; but still richer is the double-flowered variety, which deserves a place in the foreground of all shrubberies, no less on account of its perpetual verdure, than of its blossoms. The *U. nana* is a dwarf, trailing, smaller kind, equally showy, and well adapted for planting on rough rock-work on a large scale. These plants cannot be said to require culture; they grow anywhere, and on any soil, which, for the dwarf kind, cannot be too poor. The double one is propagated by cuttings, planted in a shady border, under a hand-light; the others are raised from seeds. The common furze is sometimes used for fences.—See *Horticultural Magazine*, Part 39.

CHELONE.—A small family of beautiful herbaceous perennials, closely allied to *Pentstemon*, and requiring similar treatment. *C. barbata*, three feet high, with long narrow leaves, and upright branches full of scarlet tubes, flowering in July; *C. centranthifolia*, dwarfer, with oval leaves, and smaller but richer scarlet blossoms; and *C. obliqua*, the flowers of which are purple, are among the best hardy perennials.

PENTSTEMON.—A large genus of herbaceous perennials, very ornamental, and among the prettiest of summer flowering plants. Some of the kinds are of a sub-shrubby habit. The best of all the kinds for the flower garden, is that grown as *P. gentianoides*, more properly called *P. Hartwegii*; this is sub-shrubby, propagates freely by cuttings, which should be wintered in cold frames, and planted out in spring; it is a free grower, and blooms most profusely from August onwards till severe frost occurs. The original *P. Hartwegii* is a kind of dullish crimson-purple, but there are now numerous varieties, such as *coccineus*, scarlet, and *albus*, white, these two being the most striking for general cultivation; other, larger, or differently coloured and better formed varieties have been raised, and fresh additions may be expected. Among the other

species there is great variety. Omitting some rare and other shy-growing though handsome kinds, we shall mention a few of those most worth cultivating as hardy perennials :—*P. ovatus*, blue ; *P. digitalis*, white ; *P. diffusus*, purple ; *P. speciosus*, blue (this should be grown as a biennial) ; *P. campanulatus*, rose ; *P. atropurpureus*, dark purple. The last two are sub-shrubby. They may be propagated by seeds, cuttings, or division, according to their peculiar habits of growth, and require to be planted in a moderately rich loamy soil, to attain their full beauty, which is very considerable.

VERBASCUM. — Large spiry-habited hardy perennials, strikingly effective in large borders, or towards the margins of shrubberies. They are easily grown plants, thriving in any garden-soil, and merely requiring to be sown where they are to bloom ; the duplicate plants in each patch being thinned away, leaving only the strongest. The seeds should be sown about June in one year to produce flowering plants for the next season. They are mostly biennials, and young plants should therefore be raised from seeds annually. The perennials are increased both by seeds and division. *V. Thapsus* and *V. Blattaria* are two fine yellow-flowered biennial species, blooming in July ; and *V. phœniceum* is a beautiful perennial purple-flowered kind, blooming between May and August.

FABIANA.—*F. imbricata* is a half-hardy, evergreen, small, shrubby plant, with small conical-growing branches, bearing numerous twigs, clothed with very small imbricated foliage ; the flowers are white, tubular, or rather club-shaped, and are pretty freely produced, in May and June, in the open air, and earlier in a greenhouse. It is a pretty plant to place against a wall ; but a duplicate plant should be potted, and kept during winter in a cool greenhouse. It should be planted in rather sandy compost containing a third part of peat earth, and is increased by cuttings, planted in sand, under glasses, in a gentle heat.

COBÆA.—A genus of rapid growing greenhouse climbers, covering a large space during the summer season, with their herbaceous stems. *C. scandens* bears numerous large, bell-shaped, purple flowers, all through the summer and autumn, and retains its foliage, and sometimes continues to blossom through the winter. Planted out-doors for the summer season, it grows rapidly, and will cover a large surface of a wall or building ; but in these situations it is killed by frosts. When grown in a greenhouse, it generally ripens plenty of seeds,

by which it is best propagated, though it may be increased by cuttings. It should have a rich loamy soil.

POLEMONIUM (Greek Valerian).—A family of pretty hardy perennials, of easy culture, growing readily in the soil of ordinary gardens, and increased by division of the plant, and, generally, very freely by seeds, which should be sown in June to produce flowering plants for the next year. All the species and varieties are pretty; but among the best are—*P. pulcherrimum*, blue; *P. sibiricum*, white; and *P. humile*, blue—the latter dwarfer than the rest. They flower from June to August.

HELIOPHILA.—Annual cruciferous plants, some of which are very pretty in the flower borders. They should be sown in the ground in March and April, or, for earlier plants, in March, in frames, and afterwards planted out. These plants will bloom from the latter end of May till July. Rather sandy soil is preferable for them; and they like exposure to sun. *H. araboides* and *H. trifida*, both having blue flowers in June, and growing a foot high, are the best for a limited garden. One or two kinds are delicate greenhouse shrubs.

GOMPHRENA (Globe Amaranth).—Of this genus, in which occur several stove plants of somewhat shrubby habit, and other species ranking among tender annuals, the popular kind is the *G. globosa*, familiarly known in gardens as the "Globe;" this is an annual, blooming from June onwards, and has long been raised and flowered with cock's-combs, egg-plants, and balsams, and regarded as one of the principal window ornaments. The flowers are not much unlike clover; and we have three varieties, which are now rarely kept distinct, the only variation being in the colour of the flowers, which are red, white, and striped. They grow about a foot high, and quite branchy, bearing the round heads of flower at the ends of the branches and shoots. They grow best in loam, dung, and turfy peat. The seeds may be sown in February or March, in a wide-mouthed pot or a pan, not too thick; as soon as they are large enough to be handled well, they may be pricked out four or five in a pot, where they may grow until they are large enough to pot off singly in sixty-sized or three-inch pots. They may be grown in a warm greenhouse, or a hot-bed of moderate warmth. As soon as their roots come through the bottom of the pots, they may be shifted to larger sizes, until at last they will be a foot high, a foot through, and covered, about August or earlier, with their clover-like

flowers. They seed freely, and the flowers continue a long time after they are gathered and hung up to dry; the petals being dry, chaffy, or scaly, like Everlasting flowers. There is another pretty annual kind, called *G. pulchella*, bearing red flowers, which, though not as yet very commonly grown, deserves to be so.

CHAMÆROPS.—A genus of palms, of which *C. humilis*, the dwarf fan-palm, is the most suitable for limited gardens, and may be kept without difficulty by those who have a greenhouse. These plants grow with an upright stem, which gradually lengthens, but in cultivation is many years before it attains even a yard in height. At the top of the stem is a head of leaves, or fronds, which are shaped and plaited like a fan. It is this singular form of the leaves which renders the plants so remarkable in appearance. The flowers are insignificant. The plant should be grown in turfy loam, peat-earth, and rotten dung, in equal parts, and being coarse-rooted it requires considerable scope for its roots. In fact, the plants soon get too many roots for a garden-pot, and require to be planted in tubs. When they get to a comparatively large size, they will stand for several years with little attention besides watering and top-dressing. Under cultivation, they seldom furnish materials for propagation.

GEUM (Avens).—Hardy perennials, some of which are ornamental, others of little interest. *G. coccineum* (sometimes called *G. chiloense*, or *G. Quellyon*), is one of the best, especially its large-flowered variety *grandiflorum*: these two grow a couple of feet high, and bear scarlet flowers in July. They require the same mode of culture as *Potentilla*.

SIEVERSIA.—A genus closely related to *Geum*, and, like it, consisting of hardy perennials, among which *S. montana*, which bears large yellow flowers, in the summer months, is a pretty plant for the border, or for rock-work. They require managing precisely like *Geum*.

POTENTILLA (Cinquefoil).—A very large family of hardy perennials, blooming about July, now becoming popular, and comprising some fine garden varieties. Several very handsome species may be selected: as *P. atrosanguinea*, dark crimson; *P. Thomasii*, yellow; *P. formosa*, rose; *P. bicolor*, yellow, margined with red; *P. insignis*, yellow. Of the garden varieties half-a-dozen very desirable kinds may be selected: as *P. Hopwoodiana*, rose, cream centre; *P. Russelliana*, crimson-scarlet;

P. Mackayana, yellow and pink; *P. Menziesii*, rich crimson; *P. Plantii*, scarlet, yellow centre; *P. McNabiana*, crimson and white. They grow best in loamy soil, rich in vegetable matter, but not too full of dung. The roots should be taken up early in autumn, and parted, each crown or heart, with root attached, forming a plant; these may either be planted in a bed, to become established, or put out at once in the borders, or the flowering-beds. A bed filled with the varieties of *Potentilla* has a very fine effect during the chief of the summer months. Seedlings should be raised from the best varieties, to obtain distinct kinds.—See *Horticultural Magazine*, Part 54.

CROWEA.—A family of greenhouse shrubs, of which *C. saligna* is the best known; another is called *C. latifolia;* both have rosy, star-like flowers, and bloom for a considerable period of the year. When not grown too fast, they form elegant and striking additions to a select collection. Moderately grown, they have close narrow foliage, form fine pyramidal, branching plants, and are in blooming time studded all over with bright pink stars. When grown in heat, or too much excited by the soil, the stems are more elongated and bare of leaves, the branches further apart, and the whole plant more lanky and naked. Strike the cuttings with a little bottom heat in sand, under a ball-glass, and when they have taken good root, pot them into sixty-sized pots. The cuttings, when taken off, should be only two inches long, and one inch of that should be put under the surface, so that when they are struck they will not be more than an inch and a half high. Let these potted plants be placed close to the front of the greenhouse, and turn them round occasionally, to prevent them from growing one-sided. As soon as these pots are filled with roots, change them for others a size larger, and continue them near the glass of the greenhouse, shifting, from time to time, from one pot to another. The plants will make side shoots, and assume a pyramidal shape particularly graceful and handsome. If they are required short and bushy, the tops should be taken off soon after the struck cuttings are potted off; the laterals push earlier and stronger for it; but then the stopping system having been begun must be continued, so far as to keep the plant in form. When any branch grows too vigorously, it must be checked: but the most elegant form is as the plant naturally grows, and if not grown too rapidly, the bloom will

come abundantly, and all over the plant alike, as thick at the lower end of the joints as at the tips. *C. latifolia* is not so good a plant as *C. saligna*, and is not much grown.

GODETIA.—This genus is so nearly related to the *Œnothera* that it is not every one who can see the difference. They are chiefly annual plants, one or two feet high, the colours, purple of different shades; the flower opens something of a funnel-shape, though divided, and the plant grows to the height of one foot or eighteen inches. They are considered hardy, and may be sown in open beds or borders in the spring, to flower in July and August. As soon as they come up, they should be thinned; for if they are crowded, they grow weakly, and fall about. They may be sown in patches, in the borders, six or eight plants to be left in a patch; and if—as they bloom later than some annuals—they are required early, they may be sown in pots to be forward when turned out in May. The pots must be kept in the greenhouse, and near the light; and it is necessary to keep out frost while the plants are young, otherwise they will be killed before the time of turning out. There are several species introduced, some of which are rather too much like others; but a pretty variety will be found among the following:—*G. Lindleyana*, rose, with four crimson spots; *G. rubicunda*, red; *G. vinosa*, blush; *G. tenuifolia*, pink; *G. viminea*, purple; and *G. Romanzovii*, purple. When vigorous, they remain some time in bloom.

DATURA.—The shrubby species of this genus are also known as *Brugmansias*. There are in gardens—*D. bicolor*, orange and red; *D. suaveolens*, white; *D. candida*, white; *D. lutea*, yellow; and a double white, called *D. Knightii*; all worthy of general cultivation. The *D. suaveolens* and *candida*, and the double white of the same habit, are beautiful lawn plants; these bloom in the latter part of summer. *D. bicolor* and *lutea* will be equally noble if in a sheltered spot. The culture may be rendered very simple. First, they strike from cuttings or eyes very freely, and grow so fast, that in one season you may raise a noble plant. Get a wide-mouthed pot just before the season for starting the plants, and as it is necessary to prune them pretty close in, cut the pieces you take off into eyes,—that is, take half an inch above and below every leaf, and you have an eye; set these all round the edge of the pot, and place them in the stove, or in a hot-bed, moistening the soil occasionally. In due time every one of these will

grow, and throw down abundance of roots; let these be potted into small sixty-sized pots, (three inches across,) and be kept growing in the front of the house. When these pots let the roots through the bottom, or draining-hole, change them for larger, and continue them in the stove while they establish themselves in these second pots, when they may be one-half sent into the greenhouse; the other may be kept in the stove. If you desire them bushy, take off the tops to encourage lateral shoots; if not, let them grow their own way; but as these plants have funnel-shaped flowers hanging down from the branches, it is best to let them run up three or four feet, and take off all the side branches, so that they may form standards; then they may be topped, and allowed to form a head. They will always bloom the first year if you permit them; but to form handsome standards, it is better to pick them all off the first year, and get all the strength into the plant. At the end of the year the leaves will fall and the plants rest, but they must be brought into the greenhouse. After Christmas, in early spring, prune in the branches as close as you would a rose-tree, leaving the upright stem and three or four or more branches, (that have formed the head,) two eyes, or at most three eyes, long from the trunk. As these shoot, rub off any that are likely to be crowded, and leaving only such as are likely to form part of a handsome head. Let these grow, and you will have a noble head to the plant—the branches loaded with flowers, that form a beautiful object. When these plants are turned out on a lawn, it is usual to turn them out of the pots, and plant them in the ground. The soil best adapted for this tribe is loam, dung, and peat, in equal quantities. They are raised from seed in a hot-bed in spring; when large enough, potted off in small sixty-sized pots, and removed in a day or two to the greenhouse; they are treated as so many cuttings or eyes would be. Several large annual species are known in gardens as Thorn-apples. They all bear a funnel-shaped flower, white, purple, or blue—single or double. The *D. Stramonium* is smoked by many persons for consumption; this bears a white flower, and in many neighbourhoods it is a common and even troublesome weed, for the seeds lie a long time in the ground, and if below a certain distance from the surface do not vegetate; but the seeds that are brought to the surface by the ordinary working of the ground come up very strong. Some of the varieties have a large and rather showy bloom.

The plants being annual are all raised from seed, which, to hasten the flowering, should be sown in heat, and planted out in May where they are to bloom. The seeds should be gathered before they scatter themselves about. Of these annual species, *D. cerutocaulon, fastuosa, Metel,* and *Tatula,* are the most worth growing; they have white or purplish flowers, and, as regards habit, are rather coarse growing, blooming in July and August.

BRUNONIA.—A very pretty greenhouse perennial, bearing heads of pretty pale-blue flowers on slender stems, eight inches or a foot high, and springing from the root. The species is called *B. australis,* and blooms in June. It requires a well-drained pot, and a compost of dung and peat, with a little loam intermingled; propagated by division.

BRUNIA.—Greenhouse evergreen shrubs, with fine heath-like leaves. Their habit is elegant, but they possess no other beauty. *B. lanuginosa* is one of these elegant growers. A light compost of sandy peat and loam suits them best; and they are propagated by cuttings in the same way as *Ericas.*

ANGELONIA.—A genus of elegant stove sub-shrubby plants, bearing showy purple flowers, in long spikes. They grow freely in a moderate stove temperature, in light rich soil, composed of peat and loam in a turfy state, and require when established plenty of pot-room, and a good share of water when growing, but the pots must be well drained. Cuttings will root very readily, if planted in sandy soil, and placed in a close frame, where there is a moderate degree of heat. The young plants require to be frequently stopped, to induce a bushy habit. *A. grandiflora* is showy, flowering in July; but a dwarfer sort, named *A. angustifolia,* which also blooms in July, is in every way preferable; in both, the blossoms are purple, and grow in spikes at the ends of the branches.

ANIGOZANTHOS. — Greenhouse perennial herbs, with sword-shaped leaves and tubular flowers, remarkable from their velvety exterior surface. *A. Manglesii,* the handsomest, has flowers green and red in May; in *A. coccinea* they are crimson, and are produced in July; in *A. flavida* they are yellow, and are also borne in July. They are plants of easy management, growing readily in a turfy compost of peat and loam, three parts of the former to one of the latter, the whole intermixed with sand to make it porous. In the growing season they must be kept well watered, but must be rather dry in

winter. The plants separate with facility, by which means they may be propagated.

BUTOMUS (Flowering Rush).—*B. umbellatus* is a very beautiful hardy aquatic, with long grassy foliage, bearing in July umbels of pink blossoms on the top of a tall stalk. It requires merely to be planted in the margin of a pond or piece of water, in the muddy bank, and soon establishes itself, spreading by means of suckers from the root, which also affords the means of propagating the species.

BUXUS (Box).—A genus of hardy evergreen shrubs, of remarkably neat habit and foliage. There are many varieties of the common tree box, *B. sempervirens*, which, however, is a shrub, and of these the broad-leaved and gold-striped are perhaps the best. *B. balearicus*, the Minorca Box, with somewhat larger and broader leaves, is a still finer species. They grow in common garden soil, preferring loam; increase is effected by layers or cuttings.

LYTHRUM.—A genus of hardy plants, the annual species of which are of little importance. The hardy perennials include several pretty species, having erect stems, bearing from the axils of the leaves along the upper part numerous flowers, which form a long flowery spike; the colour is purple or rosy-purple. *L. salicaria* is a strong grower, thriving in damp and even wet situations; *L. virgatum* is a very pretty slender twiggy kind; both these blossom from June till September. *L. alatum* is a frame plant, with long slender scarcely branched stems, bearing also purple flowers throughout the summer. These are all desirable kinds. The hardy ones grow in ordinary soil, and are increased by division; the frame one grows from cuttings, and should be potted in a soil of three parts peat to one of loam.

MANETTIA.—Very pretty climbing shrubs, bearing a profusion of tubular blossoms, of bright showy colours. They require a stove, and are grown from cuttings of the young shoots planted in sand, and placed in gentle heat. When rooted, they are to be potted singly into small pots, and grown on in a stove, shifting them from time to time, as often as the roots become numerous among the soil. When they begin to grow a little freely, they must have trellises or some support: the best plan is to put a long upright stake for the first year, as the shoots can be returned downwards, and back again if necessary. In the spring following, the plants must be potted

at once into pots large enough to bloom them in; as they are not easily shifted after permanent trellises are fixed. The soil should be rough and turfy, composed of peat, loam, and leaf-soil in equal parts, intermixed, if necessary to render them open, with a proper proportion of sand. Good drainage is essential. The stems should be cut back to the strong mature wood, from which vigorous branches will be produced as soon as the roots begin to extend among the soil. Trellises of cylindrical form are the most suitable, around which the branches are to be trained spirally until the space is covered, when the points of the shoots must be allowed a little liberty. *M. cordifolia* is a slender plant, with a great profusion of scarlet tubes from July to September; *M. bicolor* is rather more vigorous, robust, and leafy, and has crimson tubular blossoms tipped with yellow, usually developed in the winter and spring, though sometimes in summer; the blooming season depending upon the period of their growth.

ESCHSCHOLTZIA.—A small group of hardy perennials, which admit of being cultivated as annuals. The plants are procumbent, and form a low dense branching mass, abundantly furnished with large poppy-like flowers, which in *E. californica* are yellow with an orange blotch at the base of each petal, and in *E. crocea* are wholly orange. It is a loose flower, something of a cup form, closing up in dull wet weather, and much more showy than neat. It is one of those flowers which always look untidy, and owes its place in the garden to its bright colour and large blooms, loose and ragged as they are. The seed may be sown in the early spring where it is to grow, and when it comes up too thick and close together to grow freely, it must be thinned out. It has a tap-root like a carrot, but small. The leaves are compound and very glaucous; and it blooms when about four inches high. There may be two complete seasons of bloom; for if the seed be sown in autumn, it will come up and stand through the winter, unless the frost be very severe. If the plant be left to shed its seed, the place will be overrun with it as bad as any weed, and where it has once been sown, or planted out in patches at different distances down the border and left unnoticed, you will afterwards require it to be thinned only, for you will have hundreds of plants where you only want tens. It makes a very brilliant appearance in fine weather, and especially when contrasted with the blue of the convolvulus or larkspur, and the scarlets

and purples of other flowers. It may be kept in flower from May till September. The genus has been called *Chryseis.*

CANNA (Indian Shot).—A large family of stove herbs, of considerable stature. The seeds are as large as sweet-peas, and as hard as a flint; they require stove or hot-bed heat to bring up the plants, which are tall reed-like subjects, with a long stem and a row of scarlet flowers of a tubular kind half way down the stalk. It grows well in loam and dung; a small pot may have three plants in it, and they will be better for shifting after they have grown the pots full of roots. In April fill some pots half full of broken crocks, then fill up with soil, knocking the pot on the table two or three times, to settle down the earth, and make the soil level with the edge; with a small stick or the end of your finger make three holes near the edge at equal distances, not more than half an inch deep, and drop in a seed at each place; place these pots in a hot-bed, sinking the pots half way down in the soil of the bed, and in a few days they will shoot up. Let them have water to moisten them, and as they grow up, sink the pots to make room for them; when full of roots, remove the balls whole into larger pots, and having kept them in the hot-bed a day or two to establish them, remove them to the stove; or, if you have not a stove, to the greenhouse, where they will perfect their growth, though not so rapidly as they would in the stove. They will perfect their seed in this country. The common *C. indica,* with scarlet flowers, is one of the best of the smaller kinds; *C. iridiflora,* which grows four or five feet or more in height, is more beautiful, having large drooping crimson blossoms; *C. discolor* has fine scarlet blooms, and foliage which is tinged, especially at the margin, with reddish brown. The different species flower at various periods during the year.

SANVITALIA.—This genus contains a rather interesting annual species, *S. procumbens,* which bears yellow or rather yellow-and-white blossoms of the composite kind, during the summer months. It is a dwarf half-hardy plant, and requires the ordinary treatment of half-hardy annuals. If not wanted to bloom previous to July, it is best sown in the border or beds about the beginning of April.

OPORANTHUS.—A pretty hardy bulb, formerly called *Amaryllis lutea,* and also *Sprekelia lutea,* and now known as *O. luteus,* bears yellow crocus-like flowers in September and October; and is at that season a very welcome addition to the

flower border, and especially to the bulb garden. Being quite dwarf, it is adapted for such purposes as the formation of autumn-blooming margins to flower-beds, or grass; the tint of which would contrast well with the yellow of its corolla. It is quite hardy, and of the easiest culture, preferring like most of the *Amaryllis* family a good rich loam, but growing without difficulty in any good garden soil. It is increased, like other bulbs, most readily by offsets. For bulb-gardens, this being an autumn bloomer, may be considered quite essential.

DIPLACUS.—Greenhouse or half-hardy small shrubs, of the *Mimulus* family, and possessing ornamental properties. *D. glutinosus* has orange-coloured blossoms, *D. puniceus*, crimson; both bloom at various periods almost throughout the year. They are raised from cuttings which root readily planted in sandy soil and put in a frame or hand-glass; a little warmth hastens their striking root. They may be potted into compost of a loamy nature, but lightened with turfy soil, or leaf-mould. They must be shifted on, and stopped like other free-growing subjects, until they get to a blooming size, or as large as may be required. Strong young plants should be prepared one year, for blooming the following one; that is, if good plants are required. Smaller blooming plants may be had in one year.

CALADIUM.—A genus of stove herbaceous plants, remarkable for their fine conspicuous foliage. *C. bicolor*, one of the smaller kinds, is perhaps the most desirable in a small garden; the leaves of this, which are between heart-shaped and arrow-shaped, have about half the surface of each leaf, in the centre, marked with a conspicuous red blotch, which gives them a very ornamental effect among other plants. The inflorescence is white; but the foliage is the most remarkable part. The plants should be potted in rich light loamy soil, and kept in the stove. In winter they are best kept rather dry, unless some plants are kept in a growing state all the winter, which they will do in a warm moist temperature. They propagate by division of the plant. They are closely related to the *Arums*.

TOURNEFORTIA.—*T. heliotropioides*, is a heliotrope-like hardy or nearly hardy plant; not showy, but a very free bloomer, and worth growing for the sake of its resemblance to the heliotrope. It will grow in the open borders, and in all mild winters will not be destroyed; but a plant or two should

be kept in a frame through the winter, in case of severe weather, which might destroy it. It is increased either by seeds sown in May, or by cuttings; and is a low plant flowering from May to August.

STATICE.—A curious family of plants, the majority of which are hardy perennials, growing vigorously in ordinary flower-borders, where they throw up their widely-branching flower-stems with hundreds of small blooms covering them all over and forming a complete feather of diminutive blossoms variously coloured, but for the most part confined to white and blue. These perennials only require planting and watering in to settle the earth about their roots, and they will grow and flower undisturbed season after season until they are parted to multiply them, when they set to work and spread again. When the roots are taken up, they are divided so as to give at least one good heart to each piece of root, and the plants very soon spread and become again conspicuous. All the hardy varieties want the same treatment. Of the many hardy species in cultivation, the following may be chosen as distinct, and among the best: *S. incana*, of which there are three varieties, the crimson, the rose, and the white; *S. speciosa*, red; *S. eximia*, red; *S. emarginata*, blue; *S. bellidifolia*, blue; *S. Limonium*, blue. Several nearly hardy kinds may be kept with the protection of a frame, but from this circumstance are best kept in pots; or, at least, a store of plants should be kept in pots, if the old ones in the borders are annually abandoned: of these, among others, *S. Fortuni*, dingy yellow and white; and *S. puberula*, purple and cream, are desirable. The *S. arborea*, so very popular as a greenhouse plant, grows best in two-thirds loam from rotted turf, which is of course full of vegetable mould, and one-third turfy peat. The drainage must be very good, composed of crocks covering the bottom of the pot to one-fourth of its height, and the plant should be put into a pot no larger than is necessary for the root. It should be grown near the glass, and be changed from one pot to another as the roots get cramped. They are propagated by cuttings and offsets, striking very freely under a bell-glass with a little bottom heat. It must also be kept from frost, and should have a warm greenhouse. *S. macrophylla*, of nearly the same habit, is more robust, and thrives in an ordinary greenhouse. Both these kinds have blue-and-white flowers, in large branching panicles. Among these tender species too, *S. mucronata*, a small singular-growing

plant, covered for a long period with lilac flowers, should not be overlooked; it grows well in a greenhouse, but may be kept in a frame. Some *Statices* are now called *Armenia*.

VIOLA.—A large genus of very pretty herbaceous plants, almost all of which are hardy. The first to be mentioned is the sweet violet, *V. odorata*, of which the common wild forms should be planted in abundance in every shrubbery, for the sake of the supply of their odoriferous blossoms. For general cultivation, the varieties known as the Neapolitan, the Russian, and the tree-violet, are the best. The Russian is quite hardy, and requires only to be planted in rich soil, which must be renewed, in part at least, annually. The others need higher culture. To grow the Neapolitan sort, a bed of rich light soil must be made up, and about the beginning of May the old plants must be divided into two, three, or more, according to their size. These young plants are put out, and carefully watered, when necessary, through the summer, and are either allowed to bloom in these beds, some protection being afforded them to keep off heavy rains and frost, or they are taken up about the end of September, potted, and the pots kept in a cold dry frame during winter, with such other protection as the season renders necessary. They may be forced in frames, by the application of gentle heat; and by this means it is no unusual thing, with the luxurious, to have violets all the winter. The "tree-violet" is a double-flowered, dark variety, which, if kept trained to a single stem, acquires the appearance of a miniature tree. This requires to be grown in as a hardy plant in frames, the soil being turfy loam, decomposed cow-dung, and leaf mould, in equal parts. To secure the tree-like habit, the crown of vigorous young plants must be encouraged to push upwards by the removal of all lateral growth; otherwise this variety spreads out its runners just like other violets. There are several other varieties of the sweet violet, but these are the best. The whole genus, with one or two tender exceptions, are worth cultivating as hardy perennials; they grow very freely in good garden soil, preferring loam moderately rich, and are increased by division. A few select ones are:—*V. pedata*, blue, May to August; *V. palmata*, blue, May and June; *V. blanda*, white, May to July; *V. ochroleuca*, straw-colour, June to August; *V. stricta*, pale blue, May and June; *V. lutea*, yellow, May to August. Those which grow with stems, like the heartsease or pansy (which is a *Viola*), should

be frequently renewed from cuttings, which should, moreover, be, as far as possible, the young shoots from the root, in preference to the tips of the older shoots.

CORREA.—Greenhouse shrubs, valuable for their property of blooming in winter, and very early spring. It is one of those families of which numerous seedling forms have appeared, and others are continually being raised. These correas require very much the treatment of the Boronia. Young plants are raised from cuttings, or by inarching on the common sort, *C. alba*. This latter kind strikes freely from cuttings; and it is usual, where the propagation of these plants is an object, to keep a supply of them in small pots for the convenience of their being brought into close contact with any shoot which it is required to inarch. The advantage of inarching on this particular species, is that the *C. alba* is a freer growing plant at the root than most of the other sorts. The young plants intended for stocks should be encouraged to make a single straight, clean shoot, which is inarched as near the soil as convenient. Young plants intended to be grown as objects of superior cultivation, on the other hand, require to be frequently topped, to produce a bushy growth; and when they make a start in growth, this requires very close attention, for they grow rapidly. The best soil for these is three parts peat-earth to one of sandy loam, with more or less sand added, the other materials being turfy. The pots must be well drained, and the plants watered with care. The best old sort is *C. speciosa*, which bears deep red tubes, tipped with green, from November to May; when well grown, it is a very brilliant plant, though it has not a good foliage, and the habit is not very good. *C. virens*, which bears a profusion of tubes wholly green, and at the same season as the last, is a curiosity. *C. Harrisii*, rose, and *C. bicolor*, red and white, are two among the first seedling forms, of which many are now in cultivation. *C. delicata*, a pinkish, short-tubed form, sprung from *C. alba*, is a very distinct and desirable variety.

CLADANTHUS.—A small family, containing one pretty hardy annual, called *C. arabicus*. It is a showy dwarf plant, bearing large yellow composite flowers, about July and August, and, though not a first-rate annual, deserves to be grown where a variety is required. It should be sown in the open border, in March and again in April; or, to have earlier plants, it may be sown in frames in the former month.

GAZANIA.—Strictly speaking, these are greenhouse herbaceous plants. It is a small family, of very distinct habit, and producing large and very showy yellow or orange-coloured composite flowers. As greenhouse plants, they require little care beyond ordinary routine management, except to be occasionally repotted as they become thickly rooted. They grow well in the ordinary mixture of loam and peat-earth, which forms the staple of the composts for potted plants. *G. pavonia* and *G. rigens*, tufted-growing herbs, which bloom at intervals from May till August, have a fine effect, from the contrast produced by their black centre. The flowers of *G. uniflora* are more delicate; they are of a pale yellow or lemon colour, and the plant is altogether of a different habit, having numerous branching stems. This species forms a good subject for bedding-out in the flower-garden in summer. It increases readily by cuttings, which, if struck about August in one season, form good blooming plants for the next summer; they should be frequently stopped while young.

SALVIA (Sage).—There are two kinds of Salvia highly esteemed for the brilliance of their flowers—*S. splendens*, scarlet, and *S. patens*, brilliant blue; but there are many more that have nearly equal claims, and scores that are merely weeds. Some of them are hardy, some stove, some greenhouse, some frame or half-hardy. Salvias grow freely on any moderately good soil. The ordinary borders are adapted for them; and the greenhouse varieties do well planted out in May and potted up again in September. Most of them are herbaceous or half-shrubby perennials, and multiply by parting the roots or by striking the young shoots. The raising from seed is very simple, inasmuch as the seed has to be sown in May in wide-mouthed pots, pricked out early, a few in a pot, to grow into strength, and then planted out if they are hardy or half-hardy, or potted if they are tender. Even the tender ones may be planted out so long as they are potted up early in September, and put into frames or greenhouses, or any other contrivance to prevent the frost from injuring them. The stove varieties are not worth notice, and the others may all safely be treated as we treat geraniums, verbenas, and other plants for bedding out. For the summer flower-garden the best species are *S. fulgens*, tall, scarlet; *S. Grahami*, tall, purple; *S. chamædryoides*, dwarf, blue; *S. patens*, rich blue; *S. patens alba*, white. Of the hardy herbaceous species, *S. hians*, blue-and-

white; *S. Tenorii*, blue; *S. glutinosa*, straw colour, are worth planting in mixed borders. For the greenhouse or cool stove, some of the best are, *S. splendens*, scarlet; *S. leucantha*, white; *S. confertiflora*, orange-red; *S. gesneriflora*, scarlet. They bloom mostly towards the latter end of summer.

CENTAUREA (Centaury).—A very large genus, consisting mostly of hardy perennials, but including also several hardy annual species. Some of the species are very distinct and showy plants for a mixed border of flowers, but generally they are not such as to rank very high in modern gardens. The chief exceptions to this lie among the annual species, of which *C. depressa*, a dwarf kind with blue flowers; *C. Cyanus* (corn-bottles, or blue-bottle), a taller kind, having flowers of various colours, as blue, pink, grey, white, &c.; and *C. moschata* and *suaveolens* (known as the Sweet Sultan and Yellow Sultan), the latter having yellow, and the former lilac-coloured flowers, are familiar examples. These may either be sown in the open border about the end of March, and the plants thinned out subsequently to three or four in a patch, to be left for blooming; or they may be sown, with other annuals, in a seed-bed, or in pots, for facility of transplantation; in the latter case being sown somewhat earlier, and coming earlier into flower. Ordinarily they bloom from June, more or less perfectly onwards to September. The hardy perennial kinds, which it is not worth while to particularize, grow well, with ordinary care, in the common soil of gardens.

EUTOCA.—A family of annual plants, of which the best for gardens are *E. viscida*, a species growing two feet high, and bearing clear blue flowers; *E. Wrangeliana*, a dwarfer kind, with its flowers of a bluish-lilac colour; and *E. Menziesii*, also dwarf, with purple-lilac-coloured flowers, very distinct from the last, and more handsome. They belong to the set usually called half-hardy annuals, and are easily grown under the ordinary management, flowering June and July.

PIMELEA.—A pretty genus of greenhouse evergreen shrubs, including some of the more ornamental objects of modern culture. They are plants of a dense-branching habit, with slender foliage, and bearing at the tips of the branches close heads of blossoms, which, coming all over the plants, are very conspicuous. They require some care in their management. The proper soil for them is a mixture of three parts turfy peat soil to one of good light loam, rendered a little sandy,

and more especially so for the young plants. They are raised by cuttings in sand, under bell-glasses. As soon as they are separately established in little pots, they must be topped, and then grown onwards. This topping must be continued as often as new shoots of two or three inches long are pushed forth, until a thick, dense bush is produced; then it may be allowed to flower, and it will regulate its own growth for the most part. The greenhouse, with plenty of air, and a moderate degree of shade in hot, sunny weather, is the place for them; and this, from June till August inclusive, may advantageously be exchanged for a cold frame, elevated so that there is a circulation of air beneath, and provided with sashes to be put on, but not closed up, during continued and heavy rains, and also in the middle of hot days, and then with a shading over them. Pimeleas are easily killed by neglect of watering in drying weather, and not less easily by over-watering in gloomy weather, or in winter. The most distinct and pretty kinds—though all are good—are *P. spectabilis*, pink, very large heads; *P. Hendersonii*, bright rose-pink; *P. decussata*, pink; and *P. linifolia*, white: they come into flower from March to June.

VALERIANA (Valerian).—Hardy perennials, some of which are pretty, but not remarkably ornamental. *V. dioica* and *V. montana* are pretty dwarf plants, having blush-coloured flowers from May to July; *V. pyrenaica* is a taller plant, the flowers of a deepish pink, and produced in May and June; and *V. Phu* is one of the larger sort, with pretty white flowers about the same season. They may all be grown in the open border, in ordinary garden soil, and the smaller ones also in pots, among collections of Alpine plants. They increase readily by division of the plants.

SCHIZOPETALON.—*S. Walkeri* is a hardy annual, more curious than beautiful, but withal worth a place in any garden, not only for the singularity of its appearance, but also for the fragrance which it evolves towards evening. It is one of the cruciferous order, the flowers having four petals; but in this case, these parts are curiously fringed; they are white on the face, dull brown on the back. It should be sown in April, in moderately light soil, and will flower about July, successional sowings blooming on till September. A few plants grown with some care, in pots, and kept in a frame near the light, with plenty of air, are interesting subjects for the greenhouse, when in blossom, but they are apt to get drawn under confinement.

EUPHORBIA (Spurge).—The species of spurge, of which there are about 150, are mostly succulent or fleshy plants, often oddly shaped, without attractive flowers, and, for the most part, destitute of conspicuous colours. The flowers, in fact, are in all cases insignificant, the beauty of such as are at all showy residing in the colours of the bracts which accompany the blossoms. One or two hardy shrubby kinds are worth growing in the flower borders; they are *E. Characias*, which has a green and brown inflorescence in May and June; and *E. amygdaloides variegata*, which has variegated leaves, and broad pale green bracts, flowering from April to June. Of the greenhouse leafless kinds, which are interesting from their peculiar forms in a collection of succulents, some of the most remarkable are, *E. canariensis*, which has erect, four-angled stems, with short, forked, thorny processes on the angles; *E. Caput-Medusæ*, the Medusa's head, which has a number of slender branches issuing from the top of a stout, short, upright stem; *E. Hystrix*, the Porcupine; *E. cereiformis; E. heptagona;* and *E. meloformis*, which resembles some of the spineless *Melocacti*. There are two or three handsome stove species, such as *E. splendens, Bojeri*, and *fulgens*, the latter often called *jacquiniflora*. *E. splendens* is shrubby, with a branching stem, full of large brown thorns, bright green leaves, and conspicuous bunches of large, waxy, scarlet organs, each of which consists chiefly of two kidney-shaped bracts, which accompany the true flowers. This is in flower the greater part of the year, and the blooms are abundant on a slowly-grown plant. The plant is inclined to be bushy, but unless some pains be taken with the culture, it will soon get ill-shaped. It is necessary to form it while young, and check it where it is too luxuriant; thus it should not be grown in soil too rich: half loam and half peat will make a good soil, and the stove is the proper temperature. If any branches appear too vigorous for the general style of the plant, take off the ends, to bring them within compass, and throw strength into the rest of the plant. The slower it grows, so that it be healthy growth, the better it will be, and the more abundant the bloom. *E. Bojeri* is similar in habit and appearance to the last, only smaller in all its parts; it requires precisely similar treatment. *E. fulgens* is totally different in habit, without thorns, and altogether light and elegant in its structure. The branches, which have bright-looking lance-shaped

leaves, bear, chiefly towards their upper extremities, a profusion of their brilliant scarlet floral organs, which are of circular outline, consisting of five rounded bracts, placed like the petals of an ordinary flower; these chiefly bloom in winter. Being very milky, it is apt to die back when cut. Cuttings strike, with bottom heat, in sand. As soon as they have struck, let them be potted into sixty-sized pots; and when they start into growth, take out the top, or heart, and no more, for it makes but a small place to bleed. This will encourage lateral shoots, which, as soon as they have grown two inches, may be topped in a similar manner, and it will cause others to shoot out, forming a pretty good bushy plant, which must then be shifted as it fills the pot, and will grow and flower along the upper half of all the shoots. The plants look brilliant, indeed, when in flower.

NICOTIANA (Tobacco).—A genus of numerous species, mostly hardy annuals. The most interesting is the *N. Tabacum*, the Virginian tobacco, of which several varieties, all having rose-coloured flowers, are pretty enough to be introduced sparingly into large miscellaneous flower-borders; they grow from three to six feet high, according to the soil and climate, and flower from July to September. Several of the species have greenish-yellow flowers, of which *N. paniculata*, dwarf and slender, and *N. Langsdorffii*, taller and larger, both flowering in August, are rather pretty. The two last are hardy annuals, the seeds of which may be scattered over the borders in April, and a single plant left here and there as they grow up, where there is room for them. The Virginian tobacco must be sown in a frame in April, and treated like a half-hardy annual, being planted out in May, to produce fine blooming plants. From the size to which these plants grow, with their ample foliage, they should always be planted singly. Seeds are produced in abundance, by which they are increased.

SOLIDAGO (Golden Rod).—A large family of hardy herbaceous perennials, all producing yellow daisy-shaped blossoms, small individually, but for the most part produced so abundantly as to have a very conspicuous appearance; they mostly bloom in autumn, and some very late in the season. They are increased by dividing the roots, separating some of the young suckers, which are annually produced in abundance at the base of the plant. This may be done in autumn or spring, and the divisions planted in ordinary garden soil. The

patches should be replanted every three or four years, or they are liable to spread, and become too large. The most vigorous young plants are always to be obtained from the outsides of the old patches. But few kinds are required in one garden, as there is considerable sameness in their general aspect. *S. humilis* is a good dwarf kind, and *S. canadensis* is, perhaps, as good as any of the taller ones; both have yellow flowers from August to October.

BOSSIÆA.—A family of New Holland greenhouse shrubs, some of which are very ornamental. They require the same treatment as *Chorozema*, and others of the more delicate of what are called "hard-wooded" plants. *B. linophylla*, *B. disticha*, and *B. tenuicaulis*, all slender, branching shrubs, bearing numerous small yellow-and-brown pea-like flowers, are very pretty during the flowering season, which is usually from March to May.

CENTRANTHUS.—The *Centranthus ruber* is the Red Valerian, an ornamental hardy perennial plant, growing two feet high, and bearing, from June to October, compact heads of red blossoms at the ends of the branches. There is also a white-flowered and a flesh-coloured variety. *C. angustifolius* is similar in all respects but in having narrower leaves, and blooming somewhat earlier. These plants are best raised from the seeds, for, having but few thick woody roots, they do not well divide like many other hardy perennials. The seeds should be sown in May on a bed of light soil, not over-rich, from which they may be transplanted to a nursery-bed as soon as large enough to handle. The young plants will then be in good condition to be transplanted in the autumn into the positions in which they are required to bloom the following year.

EXOGONIUM.—A division of the old family of *Ipomœa*. One species, *E. purga*, a very handsome slender climber, bearing rosy-purplish blossoms through the summer and autumn, is the source of the drug jalap. The plant has a fleshy root, which is very liable to decay in winter, if kept in soil or in a situation at all too damp. The best place to keep the root is in a cool part of the greenhouse, in the soil, which should be nearly, but not quite, dry. In the spring the crown may be excited slowly in a greenhouse, or rather close frame; but as the summer draws on, it will grow freely enough in the open air, where it should have a branchy stake, or a trellis six or

eight feet high. It may be kept in a pot trained around stakes, cylinder fashion; and may be increased by cuttings. The flowers of this kind are less funnel-shaped than is usual among the plants of this order; they have a long slender tube, terminated by a nearly flat limb—almost the shape of a primrose, but two or three times larger.

STAPELIA (Carrion-flower). — A family of succulent plants, requiring stove heat at certain seasons to bring them to perfection. They have four-angled fleshy stems, the younger portions having minute leaves, and star-shaped flowers of various sizes. Including the allied genera, *Orbea, Tromotriche, Tridentea, Podanthes, Obesia, Davalia, Gonostemon, Caruncularia,* and *Huernia,* all once called *Stapelia,* the genus is a very large one. Any of the species are worth growing; but we should not omit to select *S. grandiflora,* which has large dark purple flowers early in winter; nor *Orbea bufonia,* which has yellow flowers, marked with black, in autumn. The most usual blooming season is from July to October. The flowers have the singular property of smelling like carrion, which smell attracts the flies, so that the blooms often become eaten by maggots. They are grown for curiosity, their flowers being very extraordinary, almost like artificial. They grow best in a mixture of sandy loam and brick rubbish or broken pots, with a very liberal drainage. They should at all times be sparingly watered, and in winter time they hardly require any. They require stove culture while growing in the early part of summer, and afterwards may be ripened in a greenhouse. But as they bloom chiefly in autumn, heat is desirable to enable them to expand their flowers. They are increased readily by cuttings, which, as they are very succulent, should be allowed to dry a week after they are taken off, when they may at once be put singly into pots, for they will strike in their own pots, without any bell-glass or other covering. There are upwards of a hundred kinds, including the families we have above named.

LOPHOSPERMUM.—A small group of showy greenhouse climbers, adapted also for planting in the flower-garden during the summer season, and suited for covering arbours, poles, and trellis-work. There are two species—*L. erubescens,* which climbs ten or twelve feet high, and in the original variety bears large funnel-shaped two-lipped flowers, of a pale rose colour, but in some improved varieties has the blossoms of a

deeper rose; and *L. scandens*, which is a shorter and more slender plant, having rose-coloured flowers, differently formed from those of the other kind. Two good garden varieties are named *Hendersoni* and *spectabilis*, the latter of which has the flowers usually spotted with white. All these plants bloom pretty freely throughout the summer. They ripen seeds freely in fine seasons, from which they are best propagated; or, if seeds cannot be had, they strike readily from cuttings. Planted out for the summer, they flourish in ordinary good garden soil; but if kept in pots, being large growing plants, they must have tolerably large pots of good rich loamy soil, which, as the plants become large and begin blooming, may be aided by applications of dilute liquid manure, or by spreading a layer of dung on the surface, to be washed in by ordinary watering. *L. scandens* is a pretty plant for planting around the edges of raised rustic or other flower-baskets, balconies, or similar places.

RHODOCHITON. — *R. volubile*, once called *Lophospermum Rhodochiton*, is a plant with much the habit and appearance of *Lophospermum*, but more slender, climbing, however, extensively, and reaching ten or twelve feet high. The blossoms, which have a saucer-shaped rosy calyx, are of a deep purple, almost black, of the same shape as those of *Lophospermum*, but smaller: they are produced freely in the summer months. The plant is increased by cuttings, which may be put in at any period between March and August, in sandy soil, and placed in a close, shady place; mild heat assists their rooting. The young plants soon acquire strength, when placed in a moderate bulk of compost, which should consist of loam, peat, and leaf-mould, in equal proportions, and used in rather a rough or lumpy condition. It is better adapted for the roof of a greenhouse or conservatory, than for the open ground; and may be grown to a very pretty state in a large pot, the branches being trained around several upright stakes forming a cylinder. In any case, the plants should be renewed annually.

COMBRETUM.—A small family of shrubs, mostly of climbing habit, and almost all requiring a stove. The old and splendid *Combretum purpureum* is now called *Poivrea coccinea*, which family contains some other very fine plants. Both families require the same treatment. They grow best in loam and peat, and may be flowered in pots on a trellis, or planted out

in the stove, to climb up the walls or along the roof. The cuttings are rooted in sand, and potted off into small pots, which are allowed to be quite filled with roots before they are changed, so as to give the plant a kind of check before any shift, for this induces it to flower when of smaller size, and, therefore, while it is more manageable in a pot. They are rambling plants, if allowed to grow rapidly under excitement, and the leaves being then more distant, the stem looks comparatively bare; it should therefore be grown slowly. This is one of the reasons for the absence of dung in the compost, and a reason also for avoiding everything at all exciting. By this caution, we may flower the Combretums on a trellis four feet high, whereas they may be made to cover a house. Of the Combretums, *C. Pinceanum*, purple-red; *C. formosum*, yellow and red, both climbers, and flowering from March to July; and *C. nanum*, a greenhouse shrub, with white flowers in April and May, may be selected.

POIVREA.—Closely related to Combretum, and requiring the same treatment. The most popular are, *P. coccinea*, with long spikes of scarlet flowers, between March and October; *P. macrophylla*, with scarlet flowers, between March and May; and *P. grandiflora*, also scarlet, blooming from July to October. They are all evergreen climbers, and when in perfection, are very handsome plants. Both families are increased by cuttings planted in sand, and placed where there is a slight bottom heat.

MALCOLMIA.—A family of about a dozen hardy annuals, of which one—*M. maritima*, the Virginian Stock—is a favourite dwarf ornament for the flower border, very easily grown, and very showy while it lasts, but not durable. The common variety is rose-coloured, but there is a white variety. Sown in good-sized patches, it forms a showy mass of simple flowers; and if sown by the middle of March, will, in favourable seasons, be in bloom early in May. To have a good succession, it ought to be sown monthly, from March to August. It is quite hardy, and forms a pretty edging plant for large borders.

RUDBECKIA.—A considerable family, mostly hardy herbaceous perennials, now separated into four or five genera, but requiring the same treatment. These genera are, *Rudbeckia*, *Echinacea*, *Obeliscaria*, *Centrocarpha*, and *Dracopis*. The four former are perennials, the latter annual. The perennials are increased by seeds sown in May, to produce flowering

plants for the next year, or by dividing the old roots any time in autumn or spring, and planting the divisions with pieces of root attached. They grow readily in any good common soil, and are for the most part strong plants, blooming towards the end of summer. *R. lævigata* and *R. laciniata* are two large yellow-flowered species, growing from two to three feet high, and blooming in July and August.

ECHINACEA.—Perennials of rather large growth, quite hardy, and of the same habit as *Rudbeckia*, requiring similar treatment. *E. purpurea*, purple, and *E. intermedia*, rose-colour, are desirable species, growing three feet high, and blooming from July to September.

OBELISCARIA.—A group of perennials, of the *Rudbeckia* family, hardy and showy. They grow two feet or two feet and a half high. *O. columnaris* has large yellow flowers; *O. Drummondii*, orange and black; and *O. pulcherrima*, yellow and red; they are showy, blooming between July and September. They require the same treatment as *Rudbeckia*.

CENTROCARPHA.—Hardy perennials, requiring to be managed precisely like *Rudbeckia*. *C. hirta*, yellow, June to November; *C. gracilis*, yellow, August to November; and *C. grandiflora*, yellow, July and August; are showy herbaceous plants of the larger class.

DRACOPIS.—*D. amplexicaulis* is a Rudbeckia-like annual, having yellow flowers from July to September. It is quite hardy, and may be sown in the open borders any time during April.

PANCRATIUM.—A genus of bulbous plants, which, including the branch families of *Hymenocallis*, *Euricles*, and *Ismene*, contains a considerable number of species, the majority of which are stove plants. They are mostly plants with the habit of *Amaryllis* and *Crinum*, having broad grassy leaves, and flowers in a bunch, on the top of a central stalk. They require the same management throughout, except as to temperature. Three parts loam, from rotted turves, and one part turfy peat, will agree with all of them. They should be potted with the bulb half way down in the soil, and should be placed in the stove or greenhouse, where they want no other care than a little water until they flower; and after that, none till they begin to grow again for the next season. The hardy ones, *P. maritimum* and *P. illyricum*, should be planted on a south border, in a dry, warm soil, and they will flower in May and June,

with ornamental white blossoms. *P. zeylanicum* and *P. verecundum* are stove species, the former white, the latter purple, blooming from June to August. *P. canariensis* and *P. carolinianum* are greenhouse kinds, blooming in June and July, the former purple, the latter white. *Ismene Amancaes*, yellow, and *I. calathina*, white, are stove bulbs, blooming from May to July. *Eurycles alata* and *E. Cunninghami*, are both white-flowered greenhouse bulbs, flowering between March and June. Finally, *Hymenocallis speciosa, amœna*, and *fragrans*, are white-flowered stove bulbs, flowering from May to September.

TWEEDIA.—A small family consisting of two perennial species. *T. versicolor*, formerly called *cœrulea*, and *T. floribunda*; the former has pretty pale-blue flowers in July and August; and the latter pink flowers from May to July. *T. versicolor* is a very pretty plant, treated as a greenhouse or frame subject. It is a twining plant, and, when nicely trained, forms a neat and interesting object. They are raised from cuttings, in sand about an inch thick, in a pot of sandy loam, under a bell-glass, with a little bottom heat; or they may be layered. A slight notch where they are pegged down is sufficient. When the cuttings or layers have struck root, they should be potted in small pots, size sixty (three or four inches across), in a compost of two parts sandy loam, and one part turfy peat, with proper draining, made with crocks or broken pots one-fourth up the pot. They may be placed out of doors in the summer time, in the shade, where their roots cannot strike through into the ground. They may be topped, to make them throw out lateral shoots; and when the first pots are full of roots, they may be planted in pots eight inches across, and the proposed trellis, or support on which they are to grow, may be put to them : an upright pillar is as good as anything, formed of wire, and the plant should be trained round and round it. The bloom will come in bunches at the end of every shoot. A dry frame or pit will protect it in winter.

STACHYS.—Hardy herbs, numerous, mostly perennial, but some of them annual. Many of them are weedy. *S. coccinea*, which has scarlet flowers, and *S. speciosa*, red, both blooming through the summer, are frame plants, and are raised from cuttings, and potted in light loamy soil. *S. corsica* is a pretty diminutive alpine plant, with pinkish-lilac flowers between April and July; it is only a couple of inches

or so in height, and hardy, succeeding well in pots among alpine plants, in a rather sandy soil, and increased by division. The others are of little importance.

CHEIRANTHUS (Wall-flower).—A genus of plants of somewhat shrubby habit, containing *C. Cheiri*, the well-known common wall-flower, of which there are various handsome double-flowered varieties cultivated, the best being the double bright yellow, double dark brown, and double purple. The common single is grown abundantly in most common flower borders, and bears its yellow or brownish blossoms freely in April and May, on plants reared from seeds sown in May of the previous year. The seeds should be sown in a bed of light, or rather sandy soil, and the plants pricked out, when large enough, into a nursery bed, from whence they may be transplanted, with compact balls of earth about their roots, in the early part of autumn, into the places where they are to flower. When the plants live over to a second year, they are larger; but in general the one-year-old plants are preferable. The double varieties are increased by cuttings, planted under a hand-glass in sandy earth, about May or June; and are best potted, and protected through the winter in cold frames, though sometimes established plants will survive the winter, if exposed. *C. alpinus* and *C. ochroleucus* are two pretty dwarf plants, with pale yellow flowers in April and June, suitable for rockwork, or small beds, or the front parts of borders, quite hardy, and increased by cuttings. *C. mutabilis* is a tall, rather straggling, shrub, which has changeable purplish flowers, like a single wall-flower, early in spring; and requires the protection of a frame or common cool greenhouse.

DORYANTHES.—This genus consists of one species, *D. excelsa*, a noble and rare plant, which grows as graceful as a pine or an aloe, and sends up a scaly stem from fifteen to twenty feet high, having at the top a head of magnificent crimson blooms, as much like the individual blooms of the Jacobæan lily (*Amaryllis formosissima*) as anything can be, but a little larger, and a vast number of them; it blooms in summer. The plant requires loam, peat-earth, and dung, in equal parts; is propagated from suckers; and should be potted in small pots, to be changed as the plant advances in size, from time to time. The culture should be strictly greenhouse, but care should be taken that no frost reaches it. Nurseries may grow it with heat and moisture, to grow it faster; but it is not the natural habit

of the plant, and it is not so healthy afterwards. It is some years before it attains a size to bloom, and in that particular resembles the American aloe. We have known them to bloom with greenhouse culture in twelve years; and no doubt they could be hastened three or four seasons by stove culture, although they would be more weakly for it.

CONVOLVULUS (Bindweed).—An extensive genus of ornamental plants, with trumpet or funnel-shaped flowers, great favourites in gardens. The commonest are what are known as the Convolvulus major and the Convolvulus minor. The former belongs to another family called *Pharbitis*, and the latter is technically named *C. tricolor;* it is a hardy annual, growing a foot and a half high, with beautiful blossoms of blue, white, and yellow; it should be sown in pots in March for early bloom, and again in April and May, in the open borders, for a succession. It is a fine border plant, and, where the divisions are very large, it is a good bed-flower. It is a little straggling, but not more so than can be controlled. It may be sown in pots, in patches, or, for a bed, broadcast, not too thickly. In all these cases, when it has come up, it must be weeded and thinned; and it will compensate for the trouble by assuming a most conspicuous part in the floral phalanx. *C. Scammonia* is a very pretty climber, with arrow-shaped leaves, and cream-coloured flowers from June to September; hardy in dry warm situations. *C. althæoides* is a small perennial low climber, with reddish-lilac flowers between July and September, requiring in winter the protection of a frame. *C. pentanthus* is a pretty, slender-growing, sub-shrubby, blue-flowered species, a stove-climber, blooming from April to October. The Scammony is best increased by seeds, and need only be planted in a dry, well-drained situation. *C. pentanthus*, and the stove shrubby species, require an open compost of turfy peat and loam, and a trellis for their branches if they are grown in pots; they are increased by cuttings, as are the other perennial kinds; the annuals in all cases by seeds.

IPOMŒA.—A very large genus of showy plants, closely allied to Convolvulus. It consists mostly of climbing species, of which the greater number require a stove temperature. The various species require the same treatment as the Convolvuluses, and like them are increased—the sub-shrubby and perennial kinds by cuttings, and the annuals by seeds. Nearly all the species are ornamental; but among the best are,—

I. Horsfalliæ, crimson, December to June; *I. ficifolia*, purplish-lilac, July to October; *I. platensis*, purple, July to September, these being perennial stove climbers; *I. Michauxii*, white, and *I. Purshii*, purple, greenhouse perennial climbers, flowering from August to November. The fleshy-rooted kinds require to be kept moderately dry in winter.

BATATAS.—Strong, free-growing, and very showy climbers, of the Convolvulus family. They are all perennial plants, with fleshy roots, and require to be kept moderately dry in the winter season, when dormant. *B. paniculata*, which has panicles of large pale rosy-purple blossoms about August; and *B. bonariensis*, which has pink flowers in August and September, both stove climbers, are desirable. They should have a rich, open, loamy soil; and as their growth is rapid, and limited in duration, they should be placed in large pots when they begin to grow, the soil being used in a very rough, lumpy state. They do well planted out in a stove conservatory, if their roots can be kept moderately free from damp in the winter season.

PHARBITIS (Gay-bine).—Very elegant and ornamental plants of the group of convolvuluses, but chiefly annual. The genus includes the well-known Convolvulus major, the plants commonly grown under that name including the varieties of *P. hispida* and *P. Nil*, and perhaps some others. The colours of the Convolvulus major are very varied: deep purple, violet, light blue, white, pale rose, deep rose-crimson, and blue and white striped, are all common, the blooming season being from June to September. This convolvulus should be sown in patches, round a post or pillar, or at the foot of a stump of a tree, or where it can be provided with tall stakes, in the same way that scarlet beans or everlasting peas are provided; for the plant will grow ten feet high, and be covered with bloom when the sun is out. It is a peculiar characteristic of the convolvulus to close up its flowers when it rains or is very cloudy, and at the approach of night. The varieties seed freely; but as they shed soon when ripe, a good look-out must be kept for the pods that are nearly ready; they will then ripen off the plant. The other annual species require exactly the same management. A strong growing, somewhat shrubby member of this genus, *P. Learii*, is too handsome to be here omitted; it is a plant which grows and flowers well, either in a stove or greenhouse, provided it has room to extend its

branches, and nourishment to support them; the flowers are large, very rich deep blue, and are borne between May and October; it likes a strongish, rich, loamy compost.

OMPHALODES.—A small genus containing two favourite plants, one an annual, *O. linifolia*, the Venus's Navel-wort, a free-flowering white-blossomed species, of hardy habit; the other a dwarf perennial, *O. verna*, which has from March to May pretty little bright blue flowers, which are mistaken by many persons, not botanically skilled, for the forget-me-not, a very different thing. Both these are of the easiest culture. The perennial will increase to any extent by division, and when once planted, need not be disturbed for years; for, within moderate limits, the larger the patch of such diminutive subjects, the better. The annual may be sown in the borders, with other annuals, towards the end of March, and again in May for a succession, and requires no particular kind of soil.

EPIGÆA.—A lovely little evergreen shrub, of procumbent habit, called *E. repens*, the blossoms of which, of the shape of those of the pitcher-flowered heaths, are white; those of a variety called *rubicunda* are a beautiful rose-red; they bloom in the course of the summer. The plant has a creeping stem, which spreads by degrees over the ground, rooting as it extends. It requires a bed of peat soil, and a cool, shady, somewhat moist situation. If planted between rhododendrons, in situations where these thrive, if they do not too far shade the surface, the Epigæa would flourish. It makes a very pretty pot plant, to be classed among the frame subjects, requiring shade and coolness in our summers.

MANDEVILLA.—A greenhouse evergreen climbing shrub, and one of the best that is grown, if it be planted out in a warm greenhouse, and is ripened in autumn, rested in winter, and fairly excited in spring. It grows freely, and flowers freely, the blossoms being pure white, deliciously fragrant, and produced from May to August, or later if the growth of the plant is maintained. The proper compost for the plant is the general one of half peat and half loam in a rough, turfy state; and of this the plant must have a good bulk, if it is to make a healthy and satisfactory growth. The leading branches must be trained carefully as they grow, to preserve them from accidental injury, and to fix them where they are required; and in winter, when the growth is over, and well ripened, it

may be pruned in pretty hard. It is easily to be propagated by cuttings planted in sand, and placed where they have a gentle bottom heat.

SEDUM.—A large family of succulents, comprising a great many kinds which are hardy herbs. They are well adapted for covering rockwork, or for pot culture along with alpines. They are of the easiest culture, growing in almost any soil, not too retentive of moisture, but preferring that which is sandy. When established on rockwork, they grow almost without soil. *S. villosum*, rose, June; *S. dasyphyllum*, white, June; *S. acre*, yellow, June; *S. rupestre*, yellow, June; *S. kamtchaticum*, yellow, July; *S. Telephium*, purple, July; are distinct. A very handsome frame kind, somewhat shrubby-habited, is *S. Sieboldii*, one of the prettiest of all, having very glaucous leaves, and large heads of pink flowers. It forms a large tuft when grown in a large pot, and should have a light open soil.

SEMPERVIVUM (House-leek).—A genus of succulents related to *Sedum*, consisting of many species of shrubby habit, requiring a greenhouse; and some few hardy and frame perennials. Of the latter, *S. tectorum*, the common sort, and *S. arachnoideum*, which grows in little cobwebbed tufts, have reddish-purple flowers; and *S. globiferum* has yellow flowers, all blooming from June to August. Of the greenhouse shrubby sorts, which all have yellow flowers, *S. tortuosum*, *ciliatum*, *cæspitosum*, *arboreum*, *Youngianum*, and *tabulæforme*, are distinct, and may be grown in a collection of succulents; they differ in the form and arrangement of their leaves, and in their habit of growth. Of *S. arboreum* there is a variety which has the leaves tinged constantly with dark purple. *S. arboreum* and *Youngianum* belong to a small group to which the name *Æonium* is sometimes applied. These kinds multiply from cuttings of the branches, or by the leaves, dried a little before planting. The plants should be grown in sandy loam, and require to be kept in the greenhouse, sheltered from frost. The hardy herbaceous kinds grow in the ordinary garden soil, flourishing most where the situation is rather dry than otherwise.

COLCHICUM (Meadow Saffron).—A small family of hardy bulbs, pushing up their crocus-like flowers just above ground in autumn, whence they are sometimes called autumn crocuses; the leaves are not produced with the flowers, but appear in

spring, and have more resemblance to those of the tulip than those of the crocus. They bloom throughout September, and are pretty subjects, either as patches in the mixed flower border, or as an edging. The culture is simple. They increase by offsets, or by seeds; the latter, sown as soon as ripe, and allowed two seasons' growth in the seed-bed, being kept clear of weeds, and then the strongest planted out for blooming. Offsets should be planted in a nursery-bed, to acquire blooming strength. The bulbs do not require to be taken out of the ground, except for the purpose of replanting; and this should be done in June or July, while they are quite dormant. In planting, the bulbs may be set about three inches under the surface. They are not very particular about soil, but grow best in light loam. They are desirable, from the freshness and spring-like nature of their growth, when vegetation generally is beginning to languish. The common *C. autumnale*, with lilac flowers; a double lilac variety called *multiplex*; and a white variety called *album*; *C. byzantinum*, a broad-leaved lilac kind; and *C. variegatum*, a checquered-flowered lilac kind; are the best; and, for ornamental purposes, the preference should be given to the double-flowered variety.

KAULFUSSIA.—A hardy annual, growing six inches high, and bearing blue daisy-shaped flowers, about two months from the time of sowing the seeds. This should be done in April, in finely-pulverised soil; or, to obtain earlier blooms, it may be sown in pots in March, and reared in a frame, ready to be planted out in good time in May, almost or quite in bloom. Later flowering plants should be sown about the end of July. It is a pretty dwarf plant, for the margins of beds.

HOLOGYMNE.—*H. glabrata*, formerly called *Lasthenia glabrata*, is a simple daisy-flowered yellow dwarf annual, not of much beauty except in the mass, but sometimes useful as a dwarf yellow-flowered and free-blooming annual. It is hardy; that is, may be sown in the open border in April, to flower in June, and in June to flower in August and September.

LASTHENIA.—*L. glaberrima* is very similar in its character to *Hologymne glabrata;* it is an annual of the same class, bearing flowers of the same shape and colour, and requiring to be treated exactly similar.

SWAINSONA.—A small group of greenhouse sub-shrubs, with pinnated leaves and pea-like flowers, the plants growing

from two to three feet high, and blooming in spikes, in July and August. *S. Greyana* has greyish-lilac flowers, *S. coronillæfolia*, purple, and *S. galegifolia*, scarlet. They are best raised from seeds, and require to be frequently topped while young, to keep them bushy. Cuttings will also root in sandy soil, in a frame where there is a slight bottom heat. They require a greenhouse temperature, and should be potted into a light open compost of loam, leaf-mould, and peat in equal parts.

SUTHERLANDIA.—*S. frutescens* is a pretty frame sub-shrubby plant, with pinnated leaves and scarlet pea-like flowers from June to September. It is most easily kept in a cool greenhouse in winter, and thrives best when planted out on a warm sheltered border for the summer. The compost may be loam, peat, and leaf-mould, in equal proportions. If kept in a pot, it requires to be frequently topped while young, to get it sufficiently bushy in its growth. Seedlings make the best plants; the seeds may be sown in May or June. Cuttings may be made to root in sandy soil in a warm frame.

DELPHINIUM (Larkspur).—An extensive genus of hardy plants, chiefly perennials, but containing some annuals. They are mostly plants of considerable beauty, and great favourites in gardens. Of the perennial kinds, none are better than *D. grandiflorum* and its varieties, *chinense* and *flore-pleno*, all blue flowered, in July and August, and growing about three feet high; *D. Barlowi*, a double dark blue kind, blooming from June to August; and *D. azureum*, which has pale bright blue flowers from May to July, and grows four feet high. The perennials are increased by dividing the roots in spring, and need not be disturbed above once in three years, to part the roots. The double variety of *D. grandiflorum* has its flowers a very intense blue colour. The best of the annuals are *D. consolida*, the branching larkspur, and *D. Ajacis*, the rocket larkspur, both very ornamental; they bloom from about June to August, depending on the time of sowing. The branching larkspur is a bright blue colour, and has several varieties not much worse than itself; pink, blue, and white afford a number of shades; this is hardy enough to be sown in the autumn, and stand the winter. The dwarf and tall rocket larkspurs have every variety of shade among reds, blues, purples, lilacs, and changeable colours arising out of them, and the pyramids of flowers, especially of the double varieties, have a magnificent appearance. The tall kinds may be grown

at the backs of borders and near the centre of circular beds, but the dwarf kinds are proper near the edge. Sow these where they are to bloom, thin them to three or four inches apart, clear them well of weeds, and keep them as regular as possible in the thickness, or rather distance, in all cases. They grow in any soil, and ought to be grown in every garden.

LEUCOJUM (Snow-flake).—Pretty bulbs, quite hardy, and in the foliage much like a narcissus; the flowers, however, are more like those of a snow-drop, as the name snow-flake suggests. They grow about a foot high, and are much alike in appearance; but the *L. vernum*, which blooms in spring, has one or, at most, two flowers on a stalk, whilst *L. æstivum*, which flowers in summer, has several. The former is much the rarer of the two. They multiply in the ordinary way by offsets, and may be planted in ordinary garden soil, like common narcissuses and hyacinths. *L. vernum*, being rare, may have a better compost by the intermixture of loam and peat in equal quantity with the commoner soil. It is not usual to disturb the bulbs, except for the purpose of increase.

NIGELLA (Fennel-flower, or Devil-in-a-Bush).—A genus of hardy annuals, requiring only to be sown in the open border in March, and again in May, and the plants thinned to three or four inches apart, six or eight being left in a patch. The most desirable are *N. damascena*, white, and *N. hispanica*, blue; they grow nine inches or a foot high, and bloom from June to September. The flowers have a singular form and highly curious appearance.

ERANTHIS (Winter Aconite). — The common Winter Aconite is one of those simple flowers which please more on account of the season of their appearance than their beauty. This plant, the *Eranthis hiemalis*, commences to bloom in January, often blooming amidst frost and snow, and through February it continues to decorate the garden and shrubbery. It is altogether not more than three inches high, the flowers being seated one on each pair of flat-lobed leaves, which terminate the stalk. They look like little yellow cups, with their bases surrounded by green frills. It is bulbous, or rather tuberous, and only requires to be planted in the soil and left to itself. Planted just within the margin of a flower-bed, it interferes with nothing, and if placed thick enough, makes a conspicuous edging for some time. It is also very

well placed in patches among shrubs, or in any other wilderness scenery, which it serves to enliven at a dreary season.

POLYGONUM (Persicaria).—A large genus not remarkable for floral attractions. There are, however, exceptions. *P. orientale*, a common hardy annual, which is best self-sown, grows four or five feet high, much branched upwards, with broad leaves, and numerous gracefully nodding close spikes of small red flowers, which become conspicuous from their aggregation. It blooms from July to September, and requires no culture; but if sown artificially, it may be done in March. *P. amphibium* is a beautiful hardy water-plant, with short floating stems, and rosy flower spikes in July and August. *P. divaricatum* is a pretty hardy perennial, growing about a yard high, with a densely branched stem, forming a large mass, covered over in July and August with feathery-looking bunches of creamy-white flowers. It is of the easiest culture.

OXYLOBIUM.—This is a fine family of plants, bearing pea-flowers of scarlet, yellow, or orange, and forming very handsome greenhouse plants. *Oxylobium retusum* is perhaps the most noble of the whole family, and deserves a place in every collection; it bears orange-coloured flowers in April and May. *O. Pultenæa* is also a very desirable species, having yellow flowers at the same season as the other. Some, as *O. capitatum*, bloom as late as September, commencing in May or June; in this also the flowers are yellow. Equal portions of loam, peat, and sand make a good compost for them; for, to be handsome, they should not grow too fast. They are just the kind of plant that would hardly be known, if, instead of regular growth in the moderate soil we have mentioned, they were placed in more exciting soil, and a little artificial heat. Cuttings will strike in an inch of sand upon a pot of the ordinary soil, the bottom of the cutting just to reach the soil; they should have slight bottom heat, and be covered with a bell-glass. They seed rather freely, and may be raised from this seed sown as soon as it is ripe, in wide-mouthed pots, and placed in the greenhouse. When up, they may be pricked out; when large enough potted, and changed from small to larger ones as the former fill with root.

POLYSTICHUM.—A genus of evergreen ferns, including some common native, though very beautiful species. The most graceful of these common sorts is the *Polystichum angulare*, a species of which there are a variety of forms, but all remark-

able for their compound structure—doubly pinnate—and gracefully drooping habit of growth. *P. aculeatum* is similar in appearance, but more erect and rigid in habit. *P. Lonchitis*, a rare species, is called the holly fern; it is simply pinnate, with spiny-edged leaflets, and altogether has a very distinct look. They are beautiful subjects for rock-work, on account of their elegant habit and evergreen character. They grow in cool shady places in turfy soil.—See *Moore's Handbook of British Ferns.*

DORONICUM (Leopard's Bane).—A genus of hardy herbaceous plants, growing up from a foot to eighteen inches high, with large showy yellow composite flowers. They are conspicuous border flowers, propagated easily by dividing the roots in autumn or spring, and growing in any ordinary garden soil. *D. caucasicum*, blooming from April to June; *D. Pardalianches*, in May; and *D. plantagineum*, in May and June, are good examples of the genus; but, except for the variation of the blooming season, there is scarcely difference enough in their appearance to render it necessary to cultivate more than one species.

ECHINOCACTUS (Hedgehog Cactus).—A genus of considerable extent and of much interest. The species are succulents, of a lumpish or depressed figure, usually varied on the surface by alternating perpendicular channels and ridges, the latter armed at short intervals with clusters of rigid, more or less lengthened, spines. The plants are thus lumpish masses, covered over with spines, whence the popular name. They require a greenhouse, and must be potted in well-drained pots. The compost should be loam, with sand added if necessary, and freely intermixed with bricks or potsherds, broken up into very fine fragments or dust; this material may be used in the proportion of one-fourth of the entire mass. They require much exposure to light and sun, and in winter must be kept almost dry; even in summer the supply of water must be strictly limited, so that the soil never becomes soddened. They are admirable plants for cultivating in a Wardian case, in a sitting-room window, or on a staircase, from their grotesque appearance, small size, and the slow progress they make. They are increased by planting any lateral offshoots as cuttings, which are best exposed to dry for a few days before planting. It may be useless to name a selection, as any of the species may be indiscriminately selected; *E. tubiflorus*,

E. Eyriesii, *E. hystrix*, *E. Ottonis*, *E. xanthacanthus*, and *E. oxygonus*, may be named as distinct. Their blooming season is very uncertain, and the blossoms of many of the species are not at all showy.

MAMMILLARIA (Nipple Cactus).—An extensive genus of very interesting lumpish spiny succulent plants, closely allied to *Echinocactus*, and requiring in every respect similar treatment. The species are many of them taller, and of more cylindrical form, than in that genus; and, instead of the ribbed surface, it is in this family disposed in more or less prominent tubercles, or teat-like protrusions, each terminated by a cluster of spines. Like the *Echinocacti*, they are all alike desirable; but distinct forms and appearances are presented by the following species:—*M. pulchra*, *M. nivea*, *M. chrysacantha*, *M. stellata*, *M. polythele*, and *M. acanthophlegma*.

OPUNTIA (Indian Fig Cactus).—A curious family of the Cactus group, remarkable from the singular appearance of the broad flattened oval branches or divisions of the stem, growing end to end; these are variously clothed with clusters of spines, but mostly much shorter than in the *Echinocacti*. The Opuntias are mostly tallish-growing plants. *O. vulgaris*, *O. Tuna*, *O. microdasys*, and *O. calacantha*, are desirable kinds. *O. vulgaris* is nearly hardy, and, together with *O. Tuna*, often ripens a crop of agreeable pulpy fruit.

MELOCACTUS (Melon-Thistle Cactus).—A small group of the Cactus family, with the ribbed spiny character of *Echinocactus*, but much larger, especially in the case of *M. communis*, the Turk's-cap, which sometimes measures as much as two feet in diameter; they are crowned at top by a curious woolly tuft. Large plants of this are sometimes imported, but they are difficult to preserve alive, in consequence of the injuries they sustain in their transit. They must be treated like the *Echinocacti*.

PERESKIA.—A small cactaceous genus of shrubs, having woody spiny stems, and flat fleshy leaves. The *P. aculeata*, or Barbadoes Gooseberry, grows with long trailing branches, and bears white flowers in autumn. It is often employed as a stock on which the cactaceous plants are grafted. When its long trailing stems are trained to the rafters of a plant-stove, and are worked with branches of the flowering cacti, especially the small drooping *Cereus truncatus* and its varie-

ties, it has a very charming effect. For the formation of standard Cactuses, the Pereskia is not so good a stock as some of the stouter Cereuses, on account of its wiry stems. *Pereskia Bleo* has rose-coloured flowers in spring and summer, and is rather an ornamental stove shrub. Their general treatment should be that of the Cactuses, or *Cereus* family.

POLYGALA (Milk-wort).—A genus, rather extensive, containing about an equal number of greenhouse shrubs, hardy perennials, and hardy annuals. The former division is the most important, in an ornamental point of view, consisting of evergreen shrubs, mostly of good habit, and bearing at the ends of all the shoots bunches of purple flowers, which, having a certain resemblance in shape to those of some of the pea tribe, are in reality of totally different structure. In many kinds, under good management, the bloom is so profuse as to nearly cover the plant. The best kinds are *P. cordata*, *P. oppositifolia*, and *P. Dalmaisiana*, all purple, and perpetually in flower. They are raised from seeds and cuttings. The former should be sown in the spring, in wide-mouthed pots, and started in a hot-bed, inured directly to the warmest part of the greenhouse by covering them with a bell-glass for a short time, tilting it a little the second day, and taking it off the third. When they are large enough to handle, they may be pricked out, three or four in the smallest sized pots, or more in larger ones, giving them an inch of room between the plants. From this they may be potted singly, in sixty-sized pots, and changed to larger ones as they fill up. Cuttings may be struck in sand, under a bell-glass, with a little bottom heat, if you have it, the glasses being wiped every day; when rooted, treat them like the seedlings. The best soil is loam from rotted turves two parts, and peat one part. The hardy kinds—with the exception of *P. Chamœbuxus*, a very dwarf tufted evergreen shrub, with white and yellow flowers in May and June, which is well suited for planting, with other small subjects, near the edge of a clump of American plants, and is very pretty—are of little importance in a garden.

TRADESCANTIA (Spider-wort).—A genus containing several hardy herbaceous, and a few tender kinds. The common hardy kind is *T. virginica*, blooming from May to August, and of which there are blue, red, and white-flowered varieties; *T. subaspera* is a hardy blue kind, blooming from May to October. They are readily increased by division, and require

no other than the ordinary treatment of hardy perennials, namely, to be planted in the common soil, and left undisturbed till they get too large, when they must be taken up and divided.

INDIGOFERA (Indigo).—This is an extensive family, containing a good many stove shrubs and annuals; and also some greenhouse shrubs. The genus is not of much importance, in an ornamental point of view. There are, however, two familiar greenhouse shrubs which are very pretty objects:—*I. australis*, which, between March and June, is loaded with small, rosy-lilac flowers of the papilionaceous form; and *I. decora*, recently introduced, and quite ornamental, having drooping spikes of pink flowers, through a considerable part of the summer. They are increased by cuttings, or, more easily, by seeds, when these are produced. The young plants should be potted into a rough compost of turfy peat and loam, in about equal parts, sand being added to render it porous; they must not be over-potted, but shifted only as their roots thicken, into pots a size, or at most two sizes, larger. In other respects, they may have the usual routine attention bestowed on greenhouse plants.

FERULA.—A genus of large-growing, hardy perennials, of the umbelliferous order, not often seen in cultivation, but, on account of their noble appearance, well adapted for conspicuous positions in mixed borders, or even as specimen plants on a lawn. The foliage of several of the kinds is very large, and is made up of an immense number of little parts, varying in shape in the different kinds, some having them very narrow, and others broader. The flower stems rise from a large tuft of these leaves to the height of six to eight feet, and bear numerous umbels of small yellow flowers. The species especially alluded to as deserving of cultivation, are *F. tingitana* and *F. glauca*, the former having the divisions of the leaf small, but egg-shaped, with notched margins, and a shining surface, and the latter small and narrow. They like a dryish deep soil, the roots being large, fleshy, and penetrating deeply; and abounding, moreover, in a gum-resinous matter, which in several of the species is employed medicinally.

COLEONEMA.—A small group separated from *Diosma*, and requiring the same kind of treatment. *C. album*, which has white flowers, and *C. pulchrum*, and *tenuifolium*, both having rose-coloured flowers, and all blooming throughout the

spring and early summer months, are severally possessed of ornamental properties.

LASTREA.—A rather extensive genus of ferns, including stove, greenhouse, and hardy kinds. The hardy ones comprise some of the most common of our English species, as *L. Filix-mas* (the male-fern), *L. dilatata*, and others. These, from their free-growing habits and conspicuous size, are kinds well suited for rock-work on a largish scale, and their aspect, under favourable conditions, is very ornamental. (See *Moore's Handbook of British Ferns.*) The tropical kinds require a high temperature and a moist atmosphere, and should be grown in very loose turfy peat soil.

NYMPHÆA (Water-lily).—A family of the most beautiful of water plants, and, in conjunction with *Nuphar*, including some of the most desirable for cultivation in hardy aquariums. This genus includes several stove species, as well as the hardy ones; of which latter, the common white sort, *N. alba*, is the most easily to be obtained. Nearly all the other hardy sorts have also white flowers. These plants require to have their roots planted in a layer of rich mud at the bottom of the water, and so that there is room enough for their floating foliage, they need little other attention. One of the best ways of fixing the rhizomes, or root-stocks, is to plant them in a common wicker basket filled with mud, the basket being dropped into the water where the plant is required. The tender kinds have to be planted into large pots or pans, which are sunk into cisterns of water, and, in order to secure the blooming of the plants, there ought to be provision for heating slightly the water in the cisterns by some means or other. They are increased by dividing the rhizomes. Any of the species, both hardy and tender, are worth growing.

NUPHAR.—Hardy water plants, with large floating leaves, as the *Nymphæa*, but having yellow flowers. The common sort, *N. lutea*, and the smaller one, *N. pumila*, are both natives of this country; the latter is a small and exceedingly pretty object. Either of the exotic species, of which there are two or three introduced, is worth cultivating. The culture of them all is in all respects the same as that of *Nymphæa*.

ASTRANTIA.—Elegant herbaceous plants, quite hardy, and growing freely in common garden soil; they increase by division.

ATRAGENE.—A genus of plants very like the Clematis;

they are all hardy climbers, and are adapted for training over bowers and trellis-work. They are raised from cuttings; but as seeds are to be obtained from well-established plants, they may be raised from seed bysowing early in the spring, in gentle heat, pricked out into pots, four or five in a pot, until they are large enough to be planted out of doors, or changed into large pots, for training up a trellis or device. Cuttings are to be struck in common soil, not too adhesive, covered with a hand-glass. Layers also may be made in the autumn, and the next autumn they will be ready to take off, and will be strong plants. They are all deciduous plants, and comprise in their colours purple, brown-and-yellow, white, and white-and-yellow. *A. canadensis* gives a blue flower in April.

AUBRIETIA.—A genus of very pretty dwarf evergreen herbaceous perennials, admirably suited for rock-work, or for the flower-borders, or for growing in pots; they grow readily in ordinary good garden soil, if the situation is a moderately dry one, but they do not like much wet. *A. purpurea* and *deltoidea* should be included among all sets of rock-plants; both produce purple flowers in spring and summer, and grow about three inches high. They increase readily by dividing the large spreading patches which the plant naturally forms.

AUCUBA.—Perhaps the most useful of all evergreen shrubs, as it will grow almost anywhere, and even thrives in the smoky atmosphere of dense cities. Its ample foliage, chequered with white blotches, renders it at all times conspicuous. The species is called *A. japonica.* It needs no other than ordinary garden soil, and is propagated by cuttings or by layers. No plant is better adapted than this for remedying that bare, dismal aspect, which is usually borne by shrubberies in the winter season, owing to the predominance of deciduous plants.

CALLICHROA.—*C. platyglossa* is a dwarf hardy annual, with yellow composite flowers, in July and August. It grows in ordinary garden soil, and is increased by seeds.

CALLIOPSIS.—Extremely pretty annual and perennial hardy flowers. *C. bicolor,* formerly known as *Coreopsis tinctoria,* is an elegant annual, with yellow or orange-coloured star-like flowers, having a dark eye, growing two or three feet on wiry, elegant, branching stems, so thin that at a little distance the flowers are seen without the stems. It may be

said to be one of the best annuals. There are several varieties; but a pinch of seed will give us all of them; and the variation is in the colour of the flowers, or the depth of the colour of the eye, or the size. They may be sown in heat, to forward them; and, as they are small, delicate plants, must be carefully put out in the borders, three or four in a patch; but they would be, doubtless, better sown in patches for the general bloom. They may also be pricked out, five or six in a pot, and kept in the house growing until the middle of May, when the balls of earth might be turned out whole, and the plants be undisturbed. When sowed in the open border, it must be in April, and these will come in flower in July, a month after those turned out of pots, or planted out in a forward state. This flower ought, of course, to be planted behind shorter things, about even with sweet peas, branching larkspurs, and things of similar growth; and does not make a bad appearance mixed with branching larkspurs on large borders, for they both show only their flowers. The stems of neither are large enough to interfere with their abundant bloom; and the beautiful blue of the one contrasts well with the orange and yellow, and, indeed, almost black eyes of the other. *C. Drummondii* is a dwarfer, equally beautiful annual, having large yellow blossoms in June. It requires the same treatment as the other kinds.

CALLISTACHYS. — A genus of large, and somewhat coarse, evergreen greenhouse shrubs, with large and showy bunches of yellow butterfly-shaped flowers. They are of easy culture in a compost of loam and peat, and may be increased either by cuttings or by seeds.

CALOTHAMNUS.—Beautiful evergreen greenhouse shrubs, allied to *Callistemon*, and requiring the same kind of management. *C. quadrifida*, frequently seen in collections, bears scarlet brush-like flowers in July.

BERINGERIA.—Herbaceous perennials, mostly hardy; *B. pseudo-Dictamnus* requires a frame, and bears lilac labiate flowers in July; they are moderately ornamental, all bearing purplish flowers, growing in common soil, and increasing by division.

BERZELIA.—Evergreen shrubs, requiring the shelter of a greenhouse: they bear white flowers, and are related to *Brunia*. A sandy compost of peat and loam suits them; and they propagate by means of cuttings of the young shoots.

CHRYSANTHEMUM (*Pyrethrum sinense*).—This is all but a hardy plant, but many of the varieties will not stand much frost, and therefore it cannot be considered hardy. There is a pretty good chance of their living in the ground through mild winters, and if a little litter is put over the roots, it is sure to save them; but we have seen a collection in full beauty, and almost alone in a garden, and the next day all black with one night's frost. The variety of colours and forms of the flowers render a collection rather interesting, and of late the flower has got up in popularity. Like many other flowers, the Chrysanthemum requires to be renewed every year with cuttings; they will spread in the ground and bloom for years, but if a dwarf plant is wanted, and the flowers are required in perfection, they must be renewed by cuttings. In July, when the Chrysanthemums have grown two feet, or more, take off the tops three inches long, strip the leaves off for an inch at the bottom, stick them in some silver sand, which has been filled at top of some ordinary mould, an inch thick, and let the bottoms of the cuttings touch, but not enter, the mould; cover with a hand-glass, keep all moist, put the pot in a slight hot-bed, wipe the glass every morning, and in a short time they will strike root. Pot them in size forty-eight, and grow them in the open air of the garden, where they will have all the sun. The soil in which they are potted should be loam and dung, with a little silver sand. When the blooms are showing, they may be changed into larger pots, and removed into the house; they will bloom in perfection; the plants, having wasted their growth before the tops were taken off, have not much more to grow, and therefore bloom in a dwarf state. There are other ways of growing this plant. The young suckers, or shoots from the root, may be taken off in March, and potted singly in loamy soil, being protected in a cold well-aired frame until May, when they may be set out of doors in an open place until the end of September. They must have two good shifts, and up to the end of July the tops may be pinched out to produce bushy growth. In this way large bushy plants are formed, which, where there is room for them, are very ornamental. In all cases the plants should have weak liquid manure at every watering from the time the flower-buds show distinctly; nothing else is so effective in producing fine high-coloured flowers. The best material of which to make this manure is soot. The numberless varieties of

Chrysanthemum generally grown have sprung from those varieties of *P. sinense*, originally imported from China, where these plants are great favourites.—See *Horticultural Magazine*, Part 38.

CHRYSANTHEMUM (Golden-flower).—A genus consisting of some hardy annuals, and some greenhouse shrubs. The annuals, though free-growing plants, have but little to recommend them; they have a strong chamomile smell, are poor and vulgar in their flowers, and have been long discarded by many gardeners as worthless; still they are sent out among collections of annuals, and must therefore have a notice. They are sown in a patch, anywhere about the garden, for planting out in the borders when they are large enough; they may be placed about three in a patch, at equal distances, mixing the white and yellow, or keeping them separate, as you please. They have one quality that saved them for years, but it is no novelty now with better things: these Chrysanthemums, besides being abundant flowerers, continue their bloom until the frost cuts the plant and flowers down together. If they are sown in heat, to grow forward for planting out strong in May, the bloom is much earlier than when sown in the open air. They are chiefly useful in large borders where variety is wanted. The principal ones are: *C. coronarium*, white and yellow; a yellow variety of it; and *C. carinatum*, called tricolor, from the flowers being white, yellow, and purple. The greenhouse kinds are small straggling shrubs, with deeply-jagged leaves, and large white (or yellow) flowers a good deal resembling those of May-weed. *C. coronopifolium*, the buck's-horn-leaved, is as good as any of the whites; *C. pinnatifidum* is yellow; they both flower early in spring. The annuals are increased by seeds, but the shrubby kinds may be renewed by cuttings, which take root readily. A light loamy soil suits the latter, of which young vigorous plants should be constantly reared.

PYRETHRUM (Fever-few).—A rather large genus, consisting mostly of hardy perennials of the easiest culture. They are not very ornamental, with the exception of a double-flowered variety of *P. Parthenium*, which is very showy, blooming in profusion throughout the summer and autumn, and growing from a foot to a foot and a half in height. The plant has, however, a strong bitter aromatic scent—that of fever-few—which is not very agreeable. This variety is multi-

plied by cuttings, planted during summer under a hand-glass.

MATRICARIA.—A genus of hardy annuals, with single white daisy-like flowers, growing like weeds, which, indeed, some of them really are. The only exception worth cultivating is a double variety of *M. chamomilla*, called *grandiflora*, which if frequently renewed may be kept as a perennial. This is a straggling border-flower, bearing double white blossoms during summer, and deserves growing in a mixed border. To perpetuate it, the young shoots from near the root should be taken off, and treated like cuttings.

CANDOLLEA.—A small group of greenhouse shrubs, evergreen, and bearing showy yellow blossoms. *C. tetrandra* and *C. cuneiformis* are two desirable kinds, which bloom between May and July. They sometimes ripen seeds, from which young plants may be raised, if they are sown in pots, and kept indoors until they vegetate; or cuttings may be rooted under a bell-glass. The proper compost for them is a mixture of equal parts loam and peat-earth, with which sand may be mixed sufficient to render the mass porous. They must be grown like other greenhouse plants, as to temperature and air.

ERYNGIUM (Eryngo).—A curious genus of perennials, mostly hardy, remarkable for the coloured bracts of the involucre, which constitute the showy part of their inflorescence. They are desirable among hardy herbaceous subjects, the prevailing colour being blue. They belong, in truth, to the umbelliferous order, without having any external resemblance to that class of forms so familiar in the parsley, the celery, the carrot, the fennel, &c. They are raised from seeds, which, like those of other perennials, may be sown in May, either in pots or in a bed. The young plants, if nursed into strength, will bloom the following year; but of these subjects old plants are best, if they are kept in vigour. They are not very particular as to soil. The most desirable species are: *E. amethystinum*, *E. Bourgati*, *E. alpinum*, and *E. planum*, in all of which the bracts acquire a blue colour; their flowering season is from July to September.

MELITTIS (Bastard Balm). — Hardy perennial herbs, pretty, and of easy culture, propagated by the ordinary process of division, and growing in ordinary garden soil. *M. Melissophyllum* has purple flowers of the labiate kind, produced in

June and August; *M. grandiflorum*, which blooms in May, has the flowers white, with a red lip.

TRIFOLIUM (Trefoil, or Clover).—A large family of hardy herbs, containing many annuals, and a goodly number of perennial species. Of the annuals, *T. incarnatum*, with its scarlet flower-heads, in the early part of summer, and *T. lagopus*, called the Hare's-foot, from its oblong woolly heads of bloom, are interesting; and *T. rubens*, red, June to September, and *T. elegans*, rosy-lilac, June to August, are worth growing of the perennial kinds. *T. uniflorum* is a very pretty minute perennial species, deserving a place among alpines. The annuals may be sown at once where they are to flower, early in March. The perennials need only to be planted in ordinary soil, and divided and reduced when the patches have grown too large for the positions they occupy.

TROLLIUS (Globe-flower).—A showy family of hardy herbaceous perennials, growing about a foot high, and having large globular blossoms, of a showy character. There are about a dozen kinds; but of these, *T. europæus*, with pale yellow, and *T. asiaticus*, with deep yellow flowers, are sufficient in any one garden; they bloom in May and June. They are quite hardy, growing in ordinary garden soil, and are increased easily by parting the roots during the dormant season.

PAULOVNIA.—A tree allied to Catalpa, scarcely hardy in England, in consequence of its producing very robust shoots, which English summers seldom ripen; it has very large broad leaves, and bunches of trumpet-shaped purplish flowers in the latter part of summer. It should be planted in hot dry soil, and in warm situations, where its vigorous shoots would be well ripened annually. It is increased by layers, and grows very freely; but has not yet flowered freely in England.

MUSA (Plantain-tree). — This genus includes both the banana and plantain, which some botanists have considered as mere varieties. There are several species introduced, but the most interesting are—*M. chinensis*, often called *M. Cavendishii*, which is a dwarf kind, that may be easily cultivated for its fruit; *M. coccinea*, which is a small kind, ornamental, from the scarlet colour of its erect bracts; and one called in gardens *M. Dacca*, also of moderate growth, and bearing an ornamental drooping raceme of orange flowers, with light purple bracts. The rest are mostly very large growers, requiring more room than can be generally afforded them. The plants grow after

the fashion of a grass, but with leaves long and large; the leaves hug the stem like those of the Indian corn, and the fruit is, in most of the species, borne in a large bunch at the top after flowering. The soil they grow best in consists of two-thirds rich loam from rotted turves, and one-third decomposed dung. They must be placed in a warm part of the stove. They are propagated by suckers, and are always some time before they bloom. The *M. Cavendishii* bears at the height of six feet, while some of the others do not flower under double or treble that height. Suckers should be taken off carefully before they advance much to interrupt the growth of the old plant; pot them in a size that will only just hold them, and change them from time to time as they advance, until they bloom and bear their fruit.—See *Horticultural Magazine*, Part 24.

ONOSMA.—A family of perennial herbs, mostly hardy, and many of them pretty subjects for rock-work. The flowers are tubularly bell-shaped, and in all cases yellow, or yellowish. Among the most interesting of the species are *O. tauricum*, which grows six inches high, and blooms early in summer; *O. rupestre* and *O. echioides*, growing a foot to eighteen inches high, bloom from April to June; and *O. orientale*, a dwarf kind, flowers in May and June. They all grow best on dry and rather sandy soil, such as exposed rock-work, being very liable to rot off in damp confined places. When seeds can be got, they make the best plants; they should be sown about May, either in pots for subsequent transplantation, or in the situations where they are to remain. If seeds cannot be had, they must be increased by cuttings of the young shoots, planted in sandy soil, and placed under a hand-glass.

COREOPSIS.—A genus now chiefly confined to a small group of very showy perennials, but formerly including some of the most popular annuals, as *C. tinctoria*, and *C. Drummondii*, both now called *Calliopsis*. Of the perennials, *C. lanceolata*, *C. grandiflora*, and *C. attenuata*, are showy species, all growing up to the height of from two to three feet, and bearing large yellow flowers towards the end of summer. These are propagated by dividing the old roots, which may be done in autumn or spring. The plants grow well in any moderately good garden soil, and rank among the best of the larger perennials.

EPIMEDIUM (Barren-wort).—A small group of dwarf

hardy perennials, suitable for rock-work, or for pot culture. The most showy are, *E. macranthum*, white, *E. violaceum*, violet, and *E. pinnatum*, yellow, all of which bloom about April or May. They like a soil of fresh loam and peat, in equal proportions, and deserve any little nursing of this kind on account of their beauty. On rock-work they should be placed in somewhat similar soil. They are quite hardy, but when grown in pots should be sheltered in cold frames with the choice alpines. Division of the root is the most ready means of propagating them, and this should be done about July or August, that the plants may get well established before winter.

WOODSIA.—A small group of Ferns, containing two indigenous species, of very small size, and prized on account of their rarity. (See *Moore's Handbook of British Ferns.*) Some of the exotic species are hardy, and desirable for rock-work, especially *W. obtusa*, formerly known as *W. Perriniana*, which grows a foot high, and has a light green hue. They may all be grown in turfy soil, and require to be kept free from stagnant moisture about the crown of their roots. Propagated by division.

VISCARIA.—A small family, allied to *Lychnis*, containing some neat small-growing perennials, as *V. vulgaris*, with red flowers, and *V. neglecta*, white, both natives of Britain, and forming pretty rock-plants between May and July; and *V. alpina*, red, and *V. helvetica*, red, the former Scotch, blooming in April and May, the latter Swiss, blooming in June and July. These perennials are increased by carefully dividing the dense tufts of branches which they form, retaining a share of roots to each slip if possible, and treating the divisions rather as cuttings than as plants, by keeping them in a close frame until they begin to grow. These like a very open soil, containing pounded bricks or old mortar, or any substance of similar texture. The genus also contains two very showy hardy annuals, *V. Cœli-rosa*, the Rose of Heaven, and *V. oculata*, two branchy plants, growing a foot or rather more in height, and bearing, in July and August, conspicuous rose-coloured flowers, which, in the former, are pale in the centre, but in the latter, which is the handsomer of the two, are dark-eyed. These may be sown in the open borders with other hardy annuals in March and April.

SPIGELIA (Worm-grass).—*S. Marilandica* is a pretty

hardy perennial herb, growing a foot high, and bearing tubular flowers, which are scarlet, tipped with green, and bear no inconsiderable resemblance to those of the *Correa speciosa*. The plant prefers a cool and somewhat shady situation, where the soil is of a somewhat peaty character, say half peat and half maiden loam. When in a thriving condition it is a very pretty plant. It is propagated by division of the root.

AGROSTEMMA. — The Agrostemmas are mostly hardy perennials, the most interesting being *A. Bungeana*, which has scarlet Lychnis-like flowers in July and August, and *A. coronaria*, the rose-campion, of which there are rose, white, and double-rose varieties. The former is best managed as a choice perennial, increased by division, and planted in a prepared rich loamy soil; the latter may be most successfully grown treated as biennials, fresh plants being annually raised about May for the next year's flowering; they bloom between June and September, and grow readily in ordinary garden soil.

LACHENALIA.—A genus of bulbous plants, of very ornamental character, requiring greenhouse culture. The bulbs should be potted, about August or September, into moderate-sized pots, two or three in each, and they may be kept on a shelf in the greenhouse, with occasional moderate waterings, until they come into a blooming state. They flourish in a compost of half peat and half loam, used in rather a rough state, and the pots well-drained. During their growth they ought not to get at all parched, though, especially in the earlier stages, they suffer injury from any excess of water. When in bloom they are among the prettiest ornaments of the greenhouse, with their upright spikes of drooping gaily-coloured tubes. They increase by offsets from the bulbs. They may be cultivated in a frame, moderately protected against frost in severe weather. The best and most popular kinds are—*L. pendula* and *L. tricolor*, whose flowers are yellow, red, and green, and *L. luteola*, which is yellow, though there are numerous other species, some with white, some with rose, some with green, and some with pale blue flowers; those selected all bloom in spring.

CRUCIANELLA (Cross-wort).—A genus of some eight or nine hardy perennials, half-a-dozen hardy annuals, and some two or three requiring stove and greenhouse temperature. The most desirable is *C. stylosa*, a trailing plant, with heads of pinkish-red flowers, pretty freely produced through the

months of summer. It is propagated rapidly, either by cuttings of the young shoots, or by dividing the plant; and grows readily in common garden soil. It is a pretty subject for rockwork.

LINARIA (Toad-flax).—A genus of hardy plants, containing upwards of seventy species, including considerable diversity of character and habit. About half the species are annuals, the others perennial, and but three or four require protection. *L. Spartea* is a favourite yellow-flowered annual, growing a foot high, and blooming through the summer; and *L. Pelisseriana*, with violet flowers, is of similar habit, and blooms at the same season. *L. alpina* and *L. tristis* are two pretty minute plants for pot culture, the latter rather tender; alpina has blue flowers with an orange blotch, tristis has flowers yellowish-brown, with a black blotch. These two increase by division, and grow best in sandy loam. *L. Cymbalaria*, and *L. pilosa* are two trailing lilac-flowered species, suitable for rock-work, but the former is rather encroaching. Of the hardy perennials for the borders, *L. dalmatica*, yellow, three feet, June and July; *L. vulgaris Peloria*, yellow, a foot and a half, June and September, remarkable for the regular form of its corolla; and *L. purpurea*, purple, two feet, July and September, are distinct and pretty; these are of the easiest culture in common garden soil, and increase most abundantly by division of the root.

ADAMIA.—A very small genus of greenhouse shrubs, related to Hydrangea, but much smaller in its parts. *A. cyanea*, the common kind, has whitish flowers succeeded by blue berries. It is raised from cuttings placed in a gentle heat, and grows in a mixture of loam, leaf-mould, and sand.

DIELYTRA.—A family of beautiful, low, herbaceous perennials, of which *D. eximia* and *D. formosa* have red blossoms, in June and July; and *D. cucullaria*, has whitish flowers at the same season. The most beautiful known kind is *D. spectabilis*, which has tuberous roots, the branches dying down annually; this is supposed, but not proved, to be hardy. They grow well in any moderately good soil, and increase by division; *D. spectabilis* propagates readily by cuttings of the young shoots in spring, managed after the manner in which dahlia cuttings are treated. These plants were once called *Fumarias*, and have remarkable-shaped drooping blossoms of much beauty. *D. spectabilis* forms a very handsome

pot plant; its tuberous roots must not be too much dried in winter.

LISIANTHUS.—Some of the members of this genus are now called *Eustoma*, *Tachia*, or *Leianthus*. The most popular *Lisianthus* is *Russellianus*, now called *Eustoma Russellianum;* this grows two or three feet high, and has a large head of fine purple flowers towards the end of summer. It is a biennial; and to have it in perfection it must be grown in a stove. The plants are raised in summer, and nursed in a cool stove, being shifted and topped to impart strength and bushiness. In spring they have a good shift or two into very rich open soil, and are put into a brisk moist heat, in which they grow freely; they must, however, have air enough to prevent their drawing. They are exceedingly impatient of an over supply of water, at every period of their growth. Unless the plants are well topped when young, they are apt to run up tall and thin, and are then much less beautiful than when nicely branched.

POLYPODIUM (Polypody). — Ferns. The hardy polypodies are good ferns for rock-work; *P. vulgare* and its varieties—of which *P. cambricum* is one of the handsomest of hardy ferns—being evergreen; and three other small delicate native species, lose their fronds in winter. One of these, *P. Dryopteris*, is a very free grower, and forms a charming rock plant. (See *Moore's Handbook of British Ferns.*) There are a great many exotic polypodies requiring a stove temperature; they are rather coarse, but still noble plants if they have room to develop themselves; they consequently require large pots, and good rough turfy peat soil well drained, should be used for them.

FRITILLARIA (Fritillary).—A genus of hardy bulbs, containing about a score of species, of easy culture, propagated without difficulty by means of offsets, and growing in common garden soil. They mostly flower between March and May, and are thus very useful in gardens as spring flowers. The most conspicuous is *F. imperialis*, the Crown Imperial, of which there are yellow and red varieties; these grow erect, about a yard high, leafy below, above which the stems bear a whorl of drooping tube-like flowers, crowned by an upright tuft of leaves. *F. persica* is of similar habit, with dark dull purple flowers. Of the smaller species bearing drooping cup-shaped flowers, we may mention *F. Mele-*

agris, chequered purple; *F. præcox*, white; *F. minor*, dark violet; *F. nervosa*, dark purple. The bulbs of the Fritillarias are scaly, and of a soft texture, like those of lilies, consequently they must not be dried by being left exposed for any length of time at the period of replanting.

EUONYMUS (Spindle-tree).—A genus of hardy shrubs, of which *E. japonicus*, and a striped variety, together with *E. fimbriatus*, are evergreens with fine ornamental foliage, requiring slight protection during winter in the climate of London. They will grow in common garden soil, and increase by layers, or cuttings planted under hand-glasses. The deciduous kinds are proper for shrubberies; *E. nanus* may be planted on rockwork. They are not remarkable for beauty in the flowers, but the evergreen species carry a fine foliage, and some of the other species are ornamental in autumn, from the profusion of three-cornered scarlet berries which they produce.

COLLOMIA.—A small family of annuals, allied to the Gilias and Leptosiphons. They are hardy, and of very free growth, thriving in ordinary soil, and worth growing for the sake of their ornamental properties. The species most commonly cultivated are *C. coccinea*, which has scarlet blossoms, and *C. grandiflora*, the blossoms of which are of a nankeen or buff colour. They flower from June to September, if sown at two different seasons. The first sowing should be in March, and the next in May, in the open border, and the plants must be thinned while quite small, that they may have room to grow strong and bushy.

LYCHNIS.—A genus of herbaceous perennials, some of which are very ornamental. This may be said of *L. chalcedonica*, commonly called scarlet lychnis, which grows about two feet high, and bears its scarlet flowers in June and July. Of this species there are some varieties, of which the best are the double scarlet, and the double white. The scarlet lychnis, both double and single, has been known in the English flower garden many years, and is as common as the stock or the sunflower. These, like the rest of the hardy ones, only require planting where they are to flower; they shoot up their flower stems, and develop a dense head of brilliant scarlet blooms, after the manner of the sweetwilliam, but not so flat on the face; they have more the appearance of scarlet balls, and they grow two feet high. Equally handsome, but smaller in its growth, with larger flowers, less aggregated, is the *L. ful-*

gens, which bears scarlet flowers through the latter part of the summer. *L. coronata* is another handsome scarlet-flowering kind, blooming from June to September; but the roots of this kind require to be protected from wet in winter, either by taking them up in autumn, potting them, and placing them in a dry frame, or by covering the ground about them early in autumn with some wet-repelling material, as dry sawdust, or a piece of asphalted felt. The species are propagated by parting the roots, and also from seeds, which should be sown in pans, or on prepared beds, about May, merely thinning out the young plants until they are large enough to transplant, when they may be placed in nursery-beds, at nine inches apart, where they remain till they are strong enough to produce blossoms.

HABROTHAMNUS. — Elegant shrubby plants of large growth, attaining six feet or often more in height. They are beautiful when planted out in a cool conservatory, either in borders, or against the back wall; but in pots they are rather incommodious, requiring to be grown very large, in order to obtain a free development of the flowers. They may be grown on conservative walls if the branches and roots are sheltered from wet in winter, and the soil is thoroughly drained, and not too rich, so as to check exuberant growth. They propagate very readily by cuttings. The best kinds are *H. fasciculatus,* which has scarlet tubular blossoms, and *H. elegans,* whose blossoms are of a rose colour; they flower naturally in winter, and early in spring. They grow well in loam and peat.

IOCHROMA.—A plant closely allied to Habrothamnus, from which it has been separated. It requires the same treatment in every respect. *I. tubulosa* has bunches of dark-purple tubular blossoms in September and October, and is a large-growing plant.

NICANDRA.—A genus containing one annual species, *N. physaloides,* which grows three or four feet high, robust, with large foliage, and blue-and-white flowers from the upper parts of the branches; they are pretty, having some resemblance to those of the *Nemophila insignis,* but the plant is rather coarse, and the flowers quite overpowered by the foliage. It should be sown in the borders, with other annuals, towards the end of March, and the plants all pulled away but one, the strongest; the blooming season is from July to September.

Sometimes when a little stunted it looks pretty in a large border, the blossoms then being developed in a greater proportion to the leaves.

GREVILLEA.—A large genus of New Holland evergreen greenhouse shrubs; most of the species interesting evergreens, but not possessing a gaudy character. They are increased by cuttings planted in sand, and placed under bell-glasses, on a shady shelf in a greenhouse, or in a frame. The plants should be grown in equal parts loam and peat-earth of a turfy texture, the compost being made rather sandy for the younger ones, which are to be at first potted into small pots, and shifted into larger ones only when they become pretty well filled with roots. The plants should have the tips of the young shoots removed incessantly until they have acquired some size, when they will also be bushy and well furnished with branches quite down to the pots. The flowers are of very curious structure, and some of the kinds are worth a place in select collections; one, *G. robusta*, a strong grower, for its elegant fern-like foliage, rather than its blossoms, which are not produced on small plants; another, *G. acanthifolia*, is worth growing for the sake of its leaves, which are deeply lobed, like acanthus leaves. *G. rosmarinifolia*, red, and *G. sulphurea*, pale yellow, are neat and pretty kinds to be grown for their blossoms; they both bloom at intervals during summer.

DILLWYNIA.—A family of the pea-flowered evergreen greenhouse shrubs, many of which are very ornamental. In their cultivation they assimilate exactly with such plants as *Chorozemas*, and *Pultenæas*, the treatment recommended for which will suit them. There are several species, all beautiful subjects, but perhaps the preference may be given to such as *D. speciosa*, yellow and crimson; *D. floribunda*, yellow; *D. rudis*, yellow; *D. pungens*, yellow. They come into blossom between March and July, according to the accelerative or retarding treatment they may receive.

GOMPHOLOBIUM. — A New Holland genus of pea-flowered shrubs, some climbers, and all among the most beautiful of greenhouse plants. The general treatment of *Chorozemas* is suitable to this genus. The climbing species, which, though shrubby, are of very slender growth, require rather careful training. For the sake of a blaze of flowers, the common plan of training them over a large flat shield-like trellis may be

adopted; but a more elegant effect is produced by a somewhat careless style of training on a pillar or column-shaped trellis, such plants being also more convenient in a greenhouse, and harmonizing better in their forms with the general *contour* of the plants around them, than is the case with flat-sided trellises of any design. Very careful drainage, and very careful watering are indispensable to the healthiness of the family of *Gompholobiums*. Of the climbers, *G. polymorphum*, with scarlet flowers, is the best, and this blooms from March to August. Of the more shrubby habited species, *G. barbigerum*, yellow; *G. splendens*, yellow; *G. venustum*, purplish-lilac; and *G. hirsutum*, yellow, are among the finest. The general blooming period is between March and July.

SAPONARIA (Soap-wort).—A genus of hardy plants, consisting of annuals and perennials; the former contains no species of importance, but among the latter are *S. officinalis fl. pleno*, a vigorous-growing subject, of from two to three feet high, blooming a profusion of double pink or blush-coloured flowers, from July till October. It is of the easiest culture; and, as it propagates by fragments of its roots, is with difficulty extirpated, where it has been once introduced: but it does not spread very rapidly of itself. Another very pretty species, forming a beautiful object on rock-work during summer, but apt to suffer from damp in winter, and therefore best preserved at that season in a dry frame, is the *S. ocymoides*, which spreads over the surface of the ground in patches of some size, covered with innumerable rose-coloured stars, through the principal part of the summer season. This kind is increased by seeds, when they are to be procured, and these should be sown in May or June, and the young plants potted singly, using a compost of sandy loam, and keeping them sheltered from much wet and damp, in cool frames, through the first winter, when they may be planted out. A store of plants should be so preserved annually. When seeds are not to be had, cuttings must be planted in June or July, in sandy soil, under hand-lights, and these young plants wintered as before. For a dwarf bed in a flower-garden this species is well suited, on account of the mass in which its blossoms are produced. When so planted, the surface should be covered with stones, over which the branches of the Saponaria like to spread.

HOYA.—A genus of showy plants, mostly climbers, and mostly requiring stove heat. The popular kind, however,

H. carnosa, may be grown in a greenhouse, or, indeed, in a window, although it also thrives well under the application of heat. This is an extensively climbing shrub, with thick oval leaves, and umbels of flowers of a peculiar waxy appearance, white, or whitish, with rose-colour at the centre. The flowers, which are borne at various periods between July and October, have also in this species a drop of limpid honey hanging about them. We have seen this plant thriving admirably in a Wardian case, placed in a parlour window having a sunny aspect. It is reared by cuttings, which root freely, planted in sandy soil, and not too much watered. When rooted, they require a compost of loam and peat, and a tolerably large pot; but it must be thoroughly drained, and some such porous material as broken brick, or broken charcoal, should be pretty largely intermixed with the soil employed. When the roots get firm hold of a considerable body of such an open compost, the branches grow away rapidly, and in a healthy manner, and require only to be fastened in such positions as they are to occupy. Blossoms are developed in due course; and here it should be stated, that the old bloom stalks should not be removed, for these put out blossoms year after year—a very singular fact in the economy of this plant. It does not require very large supplies of water, especially in a dormant state. We may omit to notice several other less interesting stove species, and the novelties which have been lately added to this family, with one exception, *H. bella*, which is a lovely subject, of slender habit, forming a drooping tuft, bearing numerous umbels of pure white flowers, with a purple centre, "like an amethyst set in frosted silver." This species is best grown in an open basket of turfy soil, in the way that many orchids are managed; and the damp, heated, somewhat shady atmosphere of the orchid-house is congenial to its growth. *H. bella* flowers during the summer months.

CAPSICUM.—A genus consisting of annuals that require to be raised in heat, and transplanted, for the warmer months of summer, on to a warm piece of ground, or at the foot of a sunny wall; and of shrubby plants requiring stove temperature. To the former belongs the common cultivated capsicum, *C. annuum*, whose ripe and unripe fruit enter variously into articles of domestic cookery. To the latter belongs the true Bird-pepper, or Chilli, *C. baccatum*, the source of Cayenne pepper. All these plants like a rich light soil, and the shrubby

ones must be kept constantly in the temperature of the stove. The common annual species, though planted in warm situations in the open air, are brought to greater perfection in a greenhouse, with the treatment given to balsams, and tender annuals of that class.

DRACOCEPHALUM (Dragon's-head).—Hardy perennials mostly, some half-dozen only of the score species now referred to this genus, being annuals. The perennials are rather pretty border flowers, not very particular as to soil, but rather preferring cool to hot situations. They are propagated in the ordinary way by division of the root. The flowers are blue or bluish, and among them are *D. grandiflorum*, *Ruyschianum*, *argunense*, and *austriacum*, which bloom from July to September, and afford a good selection of species.

PHYSOSTEGIA.—A small group of hardy perennials, separated from *Dracocephalum*, and containing some handsome species, blooming from July to September: as *P. speciosa*, rose, which grows four feet high; *P. virginiana*, crimson; and *P. imbricata*, rose: both the latter being of smaller stature. They require the same treatment as the *Dracocephalums*, and may be propagated in the way described as applicable to them; both families being also increased, when requisite, by seeds sown in May or June, to produce blooming plants for the following year.

MAHERNIA.—This is a small genus of slender soft-wooded greenhouse plants, of shrubby habit. They are raised from cuttings planted in sand, and placed in a moderate degree of heat; and the plants grow well in a light compost, formed by loam, peat, and leaf-mould, in equal parts, the texture opened by the addition of a little sand. The plants are liable to get rather straggling, and hence, to produce an ornamental plant, frequent resort must be had to the plan of topping the young shoots while in a growing state, to cause them to throw out lateral growth. The plants form very pretty pyramidal-shaped objects, if a shoot or two is supported in an erect position in the centre, the laterals being treated in the manner described. They should frequently be renewed from cuttings, as a large plant can be obtained in a single season, and young healthy plants are always the most vigorous. *M. pinnata*, and *incisa*, are among the prettiest of the species, and these produce their reddish-coloured spirally-folded blossoms between June and September.

HERMANNIA.—Closely related to *Mahernia*, only many of the kinds are more woody than the species alluded to under that head. They require very similar management, in all essential points. There are many species; but two distinct and ornamental kinds are *H. althœifolia*, yellow; and *H. flammea*, red: the latter species blooming at various periods throughout the year, the former in the spring and summer months. Being free-growing plants, they require to be frequently renewed from cuttings.

SOLDANELLA.—A beautiful little group of minute perennial plants, hardy, and among the most interesting of the alpine families. They increase with facility by the process of dividing the roots; and should be kept in pots—a store at least—protected from wet, and slightly from frost during the winter season. The pots must be well drained, for they will not endure stagnant moisture with impunity. When grown vigorously in pots, and flowered in good-sized tufts, they are very ornamental objects. The compost for them should be sandy loam and peat, made very porous. The few species are all beautiful; and no one should be omitted, if all can be obtained. They are *S. montana, alpina, pusilla*, and *minima*, all blue, and all blooming in April, or about that season.

RAMONDA.—A beautiful hardy perennial, flowering in the month of May, with a spike of lovely purple flowers, the plants being about a foot high. The species is *R. pyrenaica*. Like many other mountain plants, this is liable to suffer from the dampness of our climate; and hence it is advisable to protect some specimens in pots during the winter season. It loves a dry porous soil, of whatever materials it may be formed; and increases, though not very rapidly, by dividing the plant. Sometimes seeds are produced, which afford a ready means of increase; they should be sown in May.

CESTRUM.—Greenhouse shrubs of the solanaceous family, comprising many species, but few of them of much horticultural importance. *C. aurantiacum* is an exception. This species bears a profusion of showy orange-coloured flowers towards the end of summer, which are succeeded, in winter, by ornamental white berries. They increase readily by cuttings, placed in a gentle heat; and the plants grow freely in a rich loamy soil, or planted out in the border of a conservatory, for which they are well adapted.

CORONILLA.—Shrubs and perennial herbs, with papi-

lionaceous or pea-like flowers, of which some, as *C. iberica* and *minima*, yellow, and *C. varia*, pink, are showy border-flowers, blooming from July to October, of easy culture; propagated by division, and growing in common garden soil. Of the shrubby kinds, *C. glauca* is a hardy greenhouse plant, common in old collections, and bearing flowers of a bright yellow colour throughout the winter and early spring months. There are two varieties; the one with green, the other with variegated foliage. They require a compost of two-thirds loam from rotted turves, and one-third turfy-peat; they strike freely from cuttings, and may be put in in the open border under a common hand-glass in the spring, selecting for cuttings the shoots which have not any bloom. When they have struck root, pot them in small pots (sixties), with good drainage, and plant them in a frame near the glass; therefore, the shallower the frame the better; pinch out the tops to make them grow bushy, and as they fill the small pots with roots, change them for the next size (forty-eights), and return them to the frame. They may have plenty of air, and on mild days may be entirely uncovered, but they need constant watchfulness as to moisture, for if they are allowed to dry, they will get naked at the bottom, which will spoil their appearance altogether. Continue to change the pots as required, and about the first week in September put them into the greenhouse, where they may continue until the end of May, when they may be turned out in the open air, in a sheltered situation, among other greenhouse plants. They seed occasionally without any particular pains being taken, and the seeds may be sown in the same kind of compost in wide-mouth pots or seed-pans very thinly, and when large enough may be pricked out into small pots, three or four in a pot, till they are as large as struck cuttings, when they may be treated exactly like them. This *C. glauca* has ordinarily seven leaflets to the leaves; a kind very similar in general appearance has usually nine leaflets; this latter is the *C. valentina*, which blooms from February to June, also bearing yellow blossoms.

PODOLEPIS.—*P. gracilis* is a very pretty annual, with rosy-lilac composite flowers, which are freely produced from August to October. It is Australian, but may be grown as a half-hardy annual in this country. The seeds may be sown in pots, or on a mild hot-bed, in March, and planted out into sheltered situations in May for early blooming. A later crop

may be had by sowing in the open ground in April; and a still further succession by sowing in May. The plants must be well thinned; they grow a foot or upwards in height in common garden soil.

WEIGELA.—A very handsome hardy deciduous shrub, adapted for planting against ornamental walls. It is very free-growing, striking readily from cuttings or from layers, and growing vigorously in ordinary good garden soil. The blossoms, at first white, but changing to rose-pink, are produced in spring upon the partially bare branches, the development of the flowers being coeval with the first growth of the leaf-buds; they are very handsome, and generally produced in great profusion. The species is *W. rosea.*

VERONICA (Speedwell).—A very large genus, consisting almost entirely of hardy perennial herbs. Nearly a hundred and fifty species are recorded, of which about a score are insignificant annuals, and half-a-dozen are sub-aquatics. Some half-dozen are shrubs, requiring greenhouse protection, and the rest are all hardy perennials. The latter may be said to require no culture; they grow with the greatest facility in garden soil of any description; increase extensively, if required, by partition of the roots, and live through all the inclemencies of winter and the droughts of summer without suffering material detriment. There is a great sameness in the appearance of many of the so-called species, which probably deserve no such rank, but are merely natural hybrids. A selection for ornament might include *V. crassifolia,* violet; *V. hybrida,* blue; *V. glabra albiflora,* white; *V. incana,* blue; *V. elegans,* rose; and *V. caucasica,* blush; they bloom during the summer months. The greenhouse shrubby species most worthy of culture are *V. speciosa,* dark purple, and *V. salicifolia,* lilac, which also bloom during summer. These are multiplied by cuttings planted in sandy soil, and placed in a gentle heat, and the plants should be potted into rich light loamy compost. The necessary bushiness and compactness of growth is given to these plants by the usual process of continued topping till the desired form is obtained. These shrubby kinds succeed well in many situations, planted out for the summer months; but they do not rank with the first-rate "bedding out" subjects. A pretty red variety of *speciosa* has been raised from seed.

ERINUS.—This genus contains a couple of dwarf hardy perennials, growing about six inches high, and forming beau-

tiful objects for pot-culture among alpine plants, as well as for rock-work. They both bear rosy-purple flowers in March and April. They prefer light and rather sandy soil, but are otherwise not at all difficult to manage. When grown in pots they should have the protection usually given to alpines, which consists mainly in plunging the pots to prevent frosts from acting on the roots, and in shielding off heavy rains, which saturate the soil, and sometimes, if the drainage gets deranged, become conducive to the decay of the plants by rotting the roots and root-stocks. They are increased by division, which should be done about July or August, or by seeds sown as soon as they ripen.

LYCIUM (Box-thorn).—These are hardy straggling rambling shrubby plants, requiring to be trained against a wall or pillar, or supported by poles. They are free-flowering but not very brilliant plants; the blossoms are tubular, and in most of the kinds of a purplish-lilac hue, in some cases deepening into dull violet, and in others becoming paler; the blooming season is from May to August. *L. europæum*, a useful plant for rapidly covering walls or buildings, grows to a considerable height, producing long flail-like shoots, and an abundance of suckers; these long shoots, if produced from the higher parts of the plant, will assume a drooping position, and in the second year will bear a profusion of its changeable lilac flowers, so that a succession of such branches should be annually maintained; root-suckers ought to be destroyed continually. *L. afrum* is a narrower-leaved kind, with thorny branches, and violet-coloured flowers. They are perfectly indifferent as to soil, provided it is moderately well-drained and porous, and are increased without difficulty either by cuttings, by layers, or by suckers.

JABOROSA.—*J. integrifolia* is a dwarf, distinct-looking, solanaceous, herbaceous plant, sufficiently hardy to stand our winters in dryish situations. It is a stemless prostrate plant, with oblong leaves, and long white funnel-shaped flowers, with five long pointed segments, the flowers being borne singly on longish stalks about July or August. It prefers a light dryish soil, and is increased by division.

DIPLADENIA.—A genus of very beautiful stove plants, of which the most familiar are *D. crassinoda* and *D. splendens*, two evergreen climbers, with funnel-shaped blossoms of a lovely rosy hue; these are produced freely on strong plants

during the summer months, from about June to September, the duration of the blooming season depending on the management of the plants. These species are perfectly manageable as pot-plants, trained on cylinder-formed trellises, or they are equally suitable for training up the rafters, or pillars, or over the roof of a stove. They are propagated by cuttings, which should be planted in sand under bell-glasses, and placed in a warm frame, or where a slight bottom heat can be given them. When rooted, pot them singly into three-inch pots, in a mixture of sandy loam and turfy peat, equal parts, with sand added to make it porous. The plants must be kept in a stove atmosphere, and may be topped once to obtain two or more leading branches, which, for a time, may be tied to an upright stake. It is most convenient thus to train them until the plants are strong enough to be put into large pots for flowering, because after the cylinder-trellis is brought into use it is very inconvenient to have to re-train the plants in consequence of their branches becoming so much crossed and intermixed. By the time they have filled a five-inch pot with good healthy roots, they may be put into a large pot of a foot or fifteen inches in diameter, if this be during the period between February and the beginning of August. From August to February it is better to avoid shifting the plants into so large a body of soil. After this shift, with which must be associated thorough drainage, and a rough turfy staple of soil of mixed loam and peat, the cylinder-trellis may be put down, and the branches trained closely in a spiral manner until the trellis is covered. Occasionally one of the shoots should be taken in a direction downwards, so as to fill up the lower part of the trellis, which is most liable to get bare of branches. The plants while making this growth, which will probably be rapid, should be placed where they will have a free exposure to light with a flow of fresh air, accompanied by the proper temperature of a plant-stove. *Dipladenia* is a genus separated from *Echites*, and contains some other handsome plants, with tuberous roots and herbaceous annual stems.

ECHITES.—A beautiful family of stove-climbers, now separated into various genera, including the groups respectively named, *Dipladenia*, *Chonemorpha*, *Aganosma*, *Parsonsia*, *Hæmadictyon*, and *Echites*. The general treatment of *Dipladenia* is suitable to the whole of these. *E. domingensis*, with large yellow flowers, in July and August; *E. atropurpurea*,

dark purple, May to July; and *E. umbellata*, white, July, are desirable kinds; as are also the following: *Chonemorpha grandiflora*, pink, blooming in summer; *Aganosma Roxburghii*, white, blooming in autumn; *Parsonsia corymbosa*, red, blooming in summer; and *Hæmadictyon suberecta*, yellow, blooming in the summer months.

ÆCHMEA.—A genus of stove herbaceous perennials, with something the habit of the pine-apple plant. They are increased by suckers, which are generally produced as soon as the plants develop blossoms, and may be taken off and planted singly in pots of light sandy fibrous soil. They require the temperature of a stove, and rather a moist atmosphere; and as they gain strength should be potted into a rough open compost of fibry loam and peat-earth or leaf-mould, not too much decayed. When in flower, the species named below, which are the most ornamental, are very gorgeous: *Æ. discolor*, and *Æ. fulgens*, both producing branching panicles of tube-like scarlet flowers, in the former tipped with a blackish-purple, in the latter with a bluish-purple. They generally produce their blossoms from July to September.

VRIESIA.—A showy family of stove perennials, with the habit of the *Æchmeas*, and requiring to be cultivated in a similar manner. *V. speciosa*, the handsomest of the species in cultivation, has the leaves marked with transverse black bands, and bears its flowers in an upright spike, which terminates in a two-ranked head of scarlet bracts, each of which supports one white flower; the beauty of the plant, as is the case in this genus, lies in the richly-coloured bracts. *V. psittacina*, another showy species, has crimson bracts and white flowers. These plants bloom during the summer months.

GUZMANNIA.—*G. tricolor* is a showy plant of the bromeliaceous group, and therefore allied to *Æchmea* and *Vriesia*. This plant has long narrow leaves, from the centre of which grows an erect spike, terminated by broad overlapping bracts, which at the top are scarlet, and below are green striped with brown; the flowers, which the bracts almost conceal, being white. It blooms either in summer or autumn. The same treatment as that recommended for *Æchmea* will suit this also. All the plants of this race should have a period of repose answering to winter, in which they should be kept comparatively dry and cool; their growth is then much more vigorous when heat and moisture are increased in spring.

ÆGOCHLOA.—A small genus of dwarf hardy annuals, nearly allied to *Gilia*, and requiring the same mode of management,—that is to say, they grow well in ordinary light garden soil, and require to be sown about the middle of April in patches in the flower borders, the young plants being thinned out while young, so that these patches may not be allowed to grow up at all crowded. They are not sufficiently ornamental to be worth rearing earlier in the season in pots. *Æ. intertexta*, and *Æ. pubescens*, both have blue flowers, and bloom in June when sown as above.

NAVARETTIA.—A small group of dwarf hardy annuals, closely related to *Gilia* and *Ægochloa*, and requiring the same treatment as the last. *N. squarrosa* has rather pretty blue flowers, in close spiny heads, and the flowers of *N. atractyloides* are pale lilac; they come into bloom in June, if sown about the middle of April.

AIROPSIS.—*A. elegans* is one of the few grasses which may be considered ornamental; this is so from the excessive ramification and diverging direction of the hair-like branches of its flowering panicle. It is an annual perfectly, and grows freely, sown in the open border in April, but in this position its beauty is hardly detected. It should be grown in pots, which may be sown, like mignonette, six or eight plants in one five inches in diameter, in April, and allowed to stand in a cool airy frame until they come into flower, when the pots may be taken to the sitting-room, and placed in a window. The beautiful form of this plant is retained even after it has spent its life in the development of its inflorescence.

AKEBIA.—The only cultivated species, *A. quinata*, is a very pretty slender greenhouse, or nearly hardy climber, which bears elegant foliage, formed of five leaflets, and bunches of pinkish-lilac flowers, which latter are produced in the spring and early summer months. It is of easy culture, and grows freely in a rough compost of turfy peat and loam. If kept in a pot it must have one of considerable size before its growing season commences. It is propagated by cuttings, which should be planted in sand, and placed under a hand-glass, or in a mild hot-bed frame.

ALONA.—A small group of greenhouse, soft-wooded shrubs, with convolvulus-like flowers. As plants of ornament they are not of much importance, though the individual blossoms are pretty. The best is *A. cœlestis*, which has blue-and-white

flowers in July and August, but the plant is of straggling habit. They increase by cuttings, and should be grown in a compost of sandy loam.

ANÆCTOCHILUS.—One of the groups of vegetation in which insignificance, so to speak, in the blossoms, is more than compensated by the beauty of the leaves. In this genus the surface of the leaves is of the appearance of the richest velvet, of different shades of green, and over this is cast as it were a network of brilliant metallic colours. *A. setaceus* has leaves of a very dark velvet green, marked with a meshwork of gold-coloured netted veins; in *A. argenteus* they are paler green, with silver netted lines. These plants require the hot, moist, shady climate of an orchid house, to which family—that of orchids—they belong. They may be potted in wide shallow pots, among turfy fragments of peat, sphagnum moss, and potsherds, and grow most vigorously if kept usually covered with a bell-glass, which should, however, be tilted a little every day, to prevent their being destroyed by accumulated damp. They increase by division.

DOSSINIA.—A genus closely related to *Anœctochilus*, and requiring precisely similar management. *D. marmorata*, is the only species in cultivation; in this, the velvety leaves are copper-coloured, overlaid with a network of golden lines.

GOODYERA.—A genus of perennials, two or three of which are hardy, requiring to be grown in spongy, peaty soil, in a shady situation, not affected by drought. The most interesting is *G. discolor*, a stove species, requiring to be potted in loose turfy peat and potsherds, and propagating by division. This species bears very ornamental spikes of white flowers late in the autumn, and is therefore desirable on account of its blossoms, as well as for its velvety foliage, which is of a very dark green on the upper, and dull red on the lower surface. It is nearly related to *Anœctochilus*, but more easily managed.

BABINGTONIA. — A very pretty greenhouse evergreen shrub, valuable in collections from its property of blossoming in the autumn, when flowers are becoming scarce. The only species, *B. camphorosmæ*, has slender heath-like leaves, and something of a heath-like habit, but it produces during summer numerous long, flexile shoots, which about September and October are clothed with pretty white blossoms throughout their length, and these blossoms are produced for some weeks in succession. Cuttings of the young unflowering shoots may

be planted for increase; they should be put into sand, under bell-glasses, and kept in a moderate heat until they have taken root, when they are to be potted singly into small pots, using a compost of equal parts loam and peat, made sandy for them during these earlier stages of their progress. As the small pots fill, they must be shifted into larger ones, using less sand in the compost, but this shifting must not be done after August until February. The established plants should have a good shift about March or April, and should be kept in a light airy greenhouse; the first strong shoots may be topped to moderate their vigour, and to produce a greater profusion of less luxuriant ones, which have a better effect when in bloom. In May, when greenhouse plants are removed from the greenhouse, these should be set to grow under a frame, which, while it shields them from heavy rains, and supports some slight shading in the hottest parts of sunny days, does not prevent the constant circulation of free air about them. To this end the frame should be elevated from the rests or supports at its corners; the lights also should be off at night in all fine mild weather, and on dull cloudy days, and only put on during heavy rains, and when shading is necessary. Towards autumn the plants are to be returned to the greenhouse.

ANISODUS.—A small genus of large coarse-growing herbaceous perennials, of little beauty or interest. They grow in common garden soil, and are propagated by division.

ANOMATHECA.—Pretty bulbous perennials, adapted for the frame, or greenhouse and pot culture. *A. cruenta* bears a blood-red flower in July; *A. juncea* has a lilac flower in May. They want nothing more than common soil. When *A. cruenta* is planted out in a bed, it makes a pretty show, and the bloom lasts till September, growing not more than a foot high, and hardly that when cultivated properly. The seed should be sown in wide-mouthed pots or seed-pans, very thinly; and if they are too thick to grow well after they are up, they must be thinned, because they do not move well while young and growing; the next season, they may be put out four or five in a pot, and so be grown all the while they remain small enough. When they are crowded, they may be shifted into a much larger pot, which will give their roots an opportunity of growing outwards, but the ball should not be disturbed: when they are large enough, they may be bedded-out at the spring season, or be planted out in the autumn, and covered against frost.

HUGELIA.—A group of dwarf hardy annuals, closely related to *Gilia* and *Ægochloa*, and requiring the same treatment as the last. There are but few species, of which may be selected—*H. elongata*, which has brilliant blue flowers with white anthers; *H. lanata*, and *H. densiflora*, which also have the flowers blue. They come into bloom about June if sown in April.

CEREUS (Torch-thistle).—This is a large family of succulent plants, better known by the old name of *Cactus*. They are a group of grotesque-looking objects when out of flower, having fleshy, usually more or less angular, and lengthened stems; in which latter particular they differ from the *Echinocacti* and *Melocacti*, which are sometimes distinguished as the "dwarf cacti." The most gaudy plant of this genus is the *Cereus speciosissimus*, which has prickly four-angled stems, and large splendid blossoms, of a rich crimson-scarlet, with a violaceous tint on the inner petals. The usual flowering season is in the summer months; and the plant grows from five to eight or ten feet high, though it blossoms when much smaller. Of the many other species of this large family, we should select the following, for the beauty or interest of their flowers:—*C. grandiflorus*, the night-blooming, which has large yellowish-white flowers, that expand only at night; *C. serpentinus*, which bears purple and white flowers, in summer; and *C. flagelliformis*, the creeping cereus, which has long, slender, drooping, tail-like stems, and bears small but pretty bright rose flowers, during several of the summer months. Two or three might be added, as objects of curiosity; namely, *C. senilis*, the old-man cactus, which has a short, stout, upright, oblong stem, covered over with dense, hair-like, greyish, hanging bristles, like the grey head of an old man; *C. peruvianus monstrosus*, an irregular fleshy mass, almost like a green rock; and *C. hexagonus*, a stout, erect species, attaining considerable height, and, when large, very remarkable, from its column-like appearance. The *C. speciosissimus*, which in culture may represent all those of the first-named set, is easily managed. The blossoms come upon the corners of the generally, but not always, square stems, and form splendid funnel-shaped flowers, of rich crimson-scarlet and purple, with petals radiating like a star, but not spread out enough to show them in detail. The soil best suited for these plants, is two parts peat, one part broken pots, sifted through

a coarse sieve, one part loam sand, one part dung; these all mixed well together, and lime-core for drainage. They should stand out-of-doors, in a sheltered situation, from the time they have done flowering till September; and when removed to the greenhouse, cut in all the parts of shoots that have no bloom-buds; cut them all back to just above the part that has bloom-buds. If there are whole shoots without these buds, consider whether you want the shoot for the sake of the plant itself; if not, remove it, and cut back all those that spring out of the main stem, to three bloom-buds, or, if they have none, to within two inches of the main stem. Let them be without water from September to March; and when the buds begin to swell, water them, remove them to the coolest part of the stove, and there let them begin to open their flowers, which they may complete in the conservatory. These plants should be confined to half-a-dozen or eight main stems; and while these are in good order, let none come up from the bottom; and those that come from the sides may be saved just so far as they have bloom, until the flowering is over; let them then be cut away, all but about two inches next the stem. While out-of-doors, they are best under a south wall or some sheltered situation, where they may have all the sun; while there, they may depend on the rain for water: they will rarely want any, except in long dry weather. Cuttings root so freely, that if bits are left on the soil, they will strike into it from their sides. They are, however, generally taken at the trimming time, and, after drying the end that was cut off, stuck in a pot, to be only removed as they want more room. *C. grandiflorus*, the night-blooming cereus, may be treated in a similar way in all respects; but until it gets pretty old, in a pot it seldom flowers. Continue growing and shifting, as it fills the pots, until you have it in the number four, when you may let it be quiet till it flowers. Many train them up the wall of the hot-house, but they are better in the greenhouse at rest, without water, from the time the year's growth is complete to the time the buds swell, when they should be trimmed back to the buds. If they are trained on a wall, it ought to be in a conservatory, not so cold as a greenhouse, nor so warm as a stove. The creeping cereus should be set on a shelf, or suspended, so that its long flail-like shoots may hang down over the pots. They flower generally at the top, and, being altogether smaller, do not

require so large pots as those previously noted. This does well in the window of a living-room. The curious species may be kept in moderate sized, well-drained pots of loam and broken crocks, and require but little water, and seldom to be shifted. They do best when kept in the stove.

EPIPHYLLUM.—A group of the cactus family, with flat leaf-like branches, and bearing very showy blossoms. The common Epiphyllum is *E. phyllanthoides*, or *E. speciosum*, as it is sometimes called, formerly *Cactus speciosus*. This has every characteristic, except the shape of the stems, of the *Cereus speciosissimus;* and that it is of the same genus, seems the more clear, although ruled otherwise, from the fact of its being easily cross-bred with *speciosissimus;* and the produce bears seed as freely as either of the parents. *E. Jenkinsonii*, and other seedling varieties, are the results of some of these cross-breedings. The soil and treatment may be in all respects the same. *E. speciosum* is of a weak and drooping habit, and has not enough strength to support itself; the blooms are much smaller than those of *speciosissimus*, and are of a rosy pink. *E. Jenkinsonii*, and several of the seedling varieties, are bright scarlet, the flowers not so large, but a good deal of the form of the *speciosissimus*. They all strike equally freely, and force equally well. Among a number of plants, some are showing flower at all times of the year, and may require to be put in the stove to bring them forward. The seeds of all this family—and it is immense, though split into many different genera,—may be sown in pans, and placed in the stove till they are large enough to prick out; which job must be done with gloves on, or they will greatly punish the hands with their prickly stings. They may be put out four or five in a pot, and be kept growing in the stove until they indicate a want of rest by stopping for awhile. Cease then to give them water, and put them out into the greenhouse. When they make a start again, pot them all into sixty-sized pots, and change them from time to time as they are filled with roots. Bits from one inch long upwards, will strike without any care or trouble; merely sticking them into the soil anywhere, even after they have become dried and withered, is sufficient, and they only want changes of pots as they advance. Many persons graft these sorts upon the stronger kinds, and so have a variety of flowers on the same plant. This is not desirable; but it is

very effective to graft the weak and pendulous varieties upon the robust, because you can form a sort of standard by such means. The *Epiphyllum truncatum* is a most beautiful plant. If grown on its own bottom, it droops all round the pot; but if grafted on any one of the strong-growing cereus trunks (*C. speciosissimus* is the best), it forms a splendid weeping tree; and it ought to be on a stem two feet high, for it will weep as low down as that; and as all the flowers come at the ends of the shoots, they form a very pretty object when well grown and flowered. We have seen a good upright trunk of one of the large kinds of Cereus with three distinct heads of *E. truncatum:* one drooping nearly to the bottom; a second higher up, and smaller, nearly drooping to that; and one at top, pretty nearly reaching the second. The grafting is easy: merely cut a slit in the stock, and tuck in a bit of the kind to be grafted. If you want to graft the larger sorts, cut the part to be inserted to the form of a wedge, and insert it. Stick a pin through both, to hold the scion in its place. The flowers of *E. speciosum* are of a pretty delicate pink, and are naturally produced between May and August; it is a good window-plant. *E. Jenkinsonii* and *E. Ackermanni* are scarlet, both blooming in summer. *E. truncatum* is crimson, and blooms from July to November; and another species, of similar appearance and habit, but with rose-purple flowers, is *E. Russellianum,* which blooms in summer. There are several varieties of *E. truncatum,* but the best is *E. t. violaceum,* which has a violet tinge over the crimson of its blossoms.

LOTUS (Bird's-foot Trefoil).—A genus containing many hardy annuals and perennials, and some few greenhouse-shrubs. The most important for a garden are *Lotus corniculatus fl. pleno,* a dwarf trailing plant, with showy bright yellow flowers, double, and borne profusely during a portion of the summer. This is a hardy plant, and may either be planted on rock-work, or in the flower-border; but when put in the latter situation, two or three moderate-sized stones should be laid about it, over which its branches may trail. Another desirable species is *L. Jacobæus,* a greenhouse sub-shrubby plant, with dark chocolate flowers, nearly black. This is rather a delicate, or what is called a "miffy" plant, being liable to damp off in winter. It is increased by cuttings, which should be taken early in summer, so as to be well established before winter. They should be kept airy, and

very carefully watered. If for pot culture, they must be shifted in spring, using a light porous loamy compost; if for the flower-garden, in which they succeed well in a sheltered situation and a fine season, they must be gradually hardened, and planted out by the end of May. They will flower through the spring and summer months.

LYSIMACHIA (Loose-strife).—A family of hardy perennials, of the easiest culture, not of much importance in a flower-garden. The best are *L. ciliata* and *L. verticillata*, both erect-growing plants, of a foot and a half high, and having yellow flowers between June and August. One native species, *L. Nummularia*, called Money-wort, is a pretty trailing plant, with yellow blossoms, in June and July, and is a pretty plant for damp rock-work, or planted in a pot for the side of a shady window. These plants are all multiplied by division.

MARTYNIA.—A genus of annual plants, with a somewhat coarse habit and showy flowers. *M. fragrans* is the best; this has fragrant gloxinia-like flowers, of a purple colour, and may be grown in a frame, or planted out in the open ground. It requires rich light soil, and flowers from June till October. The plants have a forking and somewhat horizontal habit of growth.

MIMULUS (Monkey-flower).—A group of herbs, consisting, for the most part, of perennials. Two small musk-plants are annual. The ornamental varieties of Mimulus cultivated in gardens, are the offspring of *M. luteus*, *M. guttatus*, and *M. variegatus*, on the one hand, and of *M. cardinalis* and *M. roseus* on the other. Little trace of the originals now remains. Of the more permanent race represented by the latter pair of species, the varieties *Harrisonii* and *McLainii*, both of a rosy colour, are among the best that have been produced. The yellow race, with spots on the lobes of the limb of the corolla, is more fugitive, and the varieties of to-day are continually giving place to others of some supposed superiority. They all bloom from June to September. Rich loamy soil, or indeed the ordinary garden-soil, will grow them well; but they like a damp, cool, and somewhat shady situation in summer. They are multiplied by division.

MURALTIA.—A section of the *Polygalas*, and requiring the same treatment as that genus. They are greenhouse shrubs, with narrow foliage. *M. Heisteria*, a purple-flowered

kind, scarcely ever out of flower, under good management, is the best; though the flowers are individually small.

MESEMBRYANTHEMUM (Fig-marigold).—A family of upwards of three hundred species of succulent plants, all requiring a greenhouse, and mostly having a shrubby habit. They increase by cuttings, a little dried before planting, and inserted into sand, and set on a shelf in the greenhouse. The best compost for them is loam, intermixed with sand and broken potsherds, to keep it porous. Some of them are very handsome, when in perfection; but they do not assort well with other plants. Being of easy management, scarcely requiring watering, except in the height of summer, and but seldom needing to be repotted, they are well suited for window cultivation, and especially for hot sunny windows. Among the showy species, are *M. rubrocinctum*, rose, August and September; *M. inclaudens*, purple, July to September; *M. spectabile*, purple, May to August; *M. blandum*, blush, June to December; *M. aureum*, orange, March to October; *M. coccineum*, scarlet, May to September. *M. glaciale*, the common ice-plant, is an annual hardy species, interesting only from its hyaline leaves; and *M. pyropœum*, or *tricolor*, is a beautiful greenhouse annual kind, with rose-coloured flowers, blooming from May to July. This latter should be sown in the hot-frame in February, and grown in a greenhouse after it has attained some strength. A great many of the species of *Mesembryanthemum* are interesting objects, from the form of their foliage.

OSMUNDA (Flowering-fern). — The *Osmunda regalis*, called the Osmund Royal, is one of the finest of our native ferns. It grows in marshy situations, or at least where there is a constant supply of moisture. This fern is seldom seen in cultivation above three or four feet high; but in some of its native localities, as, for example, on the banks of the Irish lakes, it reaches ten or twelve feet high, and combines with its inherent nobility of aspect a great degree of elegance and grace. In a less luxuriant state, it is rather rigid than graceful; but in any healthy condition, beautiful. This differs from other ferns, in not having its fructification scattered on the back of the fronds, but collected together, and forming the entire upper part. To grow them well, they must have peaty soil, and plenty of moisture. There are some allied North American species.—See *Moore's Hand-Book of British Ferns.*

PHASEOLUS (Kidney-bean).—A genus of plants mostly annual, many of which are climbers. Some are hardy, others require stove heat. Of the former, *P. multiflorus*, the well-known scarlet-runner bean, deserves notice as a flower-garden plant, from its showy appearance when in blossom. It is a plant well adapted for covering summer-houses and temporary trellises; and is more or less ornamental from June to October. The seeds should be sown where the plants are required, in the month of March. A stove climbing species, *P. Caracalla*, has snail-like flowers, of a purplish colour, streaked with yellow. It blooms in autumn, and is a shrubby climber of perennial duration.

PITTOSPORUM.—A genus of greenhouse shrubs, more remarkable for their evergreen foliage, than for the attractiveness of their blossoms, which are small, and mostly white or straw-coloured. The most common are *P. undulatum* and *P. Tobira*, the latter of which stands against a wall in the climate of London. The former has elliptical, the latter obovate leaves; both have white blossoms, and begin to flower early in spring. They should be potted into a compost of peat and loam, and increase by cuttings or by seeds.

PLATYSTEMON.—A Californian annual, of straggling, prostrate habit, bearing sulphur or cream-coloured flowers, during summer. It likes a cool situation, and a peaty soil, and may be sown about the middle of April.

LOASA.—Hardy annuals, with pretty flowers, the stems and leaves invested with stinging hairs. They may be sown in the borders, about the middle of April, and again, if necessary, at the end of May. *L. nitida*, yellow and red; *L. lucida*, white and red; and *L. picta*, white, yellow, and red, are worth growing, the latter especially so. They are increased by seeds.

CAIOPHORA.—A small group of climbing plants, catalogued as annuals, which have been separated from *Loasa*. They are pretty plants; and, to be had in perfection, should be sown in June or July, and kept through the winter in an airy greenhouse, and then planted out in May, to cover trellis-work, or trained around stakes in large pots, if that be preferred. They bear seed abundantly, by which they are readily increased. Like the *Loasas*, these also have stinging hairs. The species are *C. lateritia*, brickdust-red, and *C. Pentlandica*, orange-red; and a hybrid called *C. Herberti*, also of an orange-red colour. They usually bloom throughout the sum-

mer, and sometimes, if raised as above directed, will also be in blossom through the spring months. The first is the most extensive climber of the three.

LIATRIS.—A family of elegant herbaceous perennials, of the composite order. They are of easy culture in good garden-soil, preferring a peaty soil, and a cool situation. They increase readily by division in the ordinary way. *L. elegans*, *spicata*, and *squamosa*, all having purple flowers, and blooming towards autumn, are desirable kinds.

JUSTICIA.—Formerly a considerable group of stove sub-shrubby plants, but now considerably reduced by the subtraction of species to form various new genera. Thus we have *Beloperone*, *Gendarussa*, *Rhinacanthus*, *Eranthemum*, *Cyrtanthera*, *Thyrsacanthus*, *Sericographis*, and *Schaueria*. These all agree as to the general features of their management. The following selection might be made :—*Justicia nodosa*, pink ; *Beloperone oblongata*, rose ; *Gendarussa coccinea*, scarlet ; *Rhinacanthus communis*, white ; *Eranthemum pulchellum*, blue ; *E. variabile*, purple ; *Cyrtanthera aurantiaca*, orange ; *C. magnifica superba*, pink ; *Thyrsacanthus strictus*, scarlet ; *Sericographis Ghiesbreghtiana*, red ; *Schaueria calycotricha*, yellow. These bloom for the most part late in summer, in the autumn, or winter, according to the culture they receive. The soil required for them is a compost of loam two parts, peat one part, thoroughly decomposed cow or horse-dung and sand, together one part. The plants may be cut down to pretty near the old wood every season after blooming. Cuttings may be struck in heat, under a bell-glass, and in sand, which should cover the ordinary soil an inch. One joint below the surface, and one above it, is length enough ; and when they are struck, they may be potted in the three-inch pots, with good drainage. Give them plenty of water, and keep them in the warmest part of the stove, until they become good strong plants. At the same time that the older plants have done flowering, the young ones may be placed with them in the coolest part of the house to rest ; and here only get enough water to keep them alive. The flowers of most of this tribe come out in spikes, at the ends of the branches ; and although they soon look untidy when they begin to fade, they are gay enough while in perfection, which happens among some or other of them the greater part of the year. In short, they are free bloomers, and are a long while in flower.

CLETHRA.—A family of shrubs and trees, comprising hardy and greenhouse species, the most beautiful of which by far is the *Clethra arborea*, a greenhouse species, with bright, showy, and rich-looking foliage, and with spikes of white bell-like blooms, like large spikes of the lily of the valley. There is hardly a prettier greenhouse tree than this species, well grown and flowered; and although called a greenhouse plant, it wants no more than just barely to be kept from the frost. Grown in loam and peat, without dung, it does not ramble too much, nor advance too fast, and as soon as it has attained a moderate size, and filled a six-inch pot, it will begin to flower. It must, however, be recollected, that so long as it is kept growing by constant shifting, it will not bloom abundantly until it gets a large size; but if the pot is pretty full of root, it will flower abundantly. We have kept it in an orangery where there was no fire all winter, merely the frost kept out, and it did not in the least suffer. Cuttings strike freely, and when struck, merely require potting from one size to another till large enough. There is a stove species, called *C. tinifolia*, and two varieties of arborea, namely, *C. arborea minor* and *C. a. variegata*, and a number of hardy ones, but inferior to those above noticed. These hardy ones will grow anywhere, and only require planting.

ANTENNARIA.—Small herbaceous perennials, mostly hardy, though some require the protection of a frame. They are suitable for pot-culture in a collection of alpines. *A. dioica* is a pretty little plant, with pink flowers. They grow in any sandy, loamy soil, and are propagated by division.

ANTHERICUM.—A genus for the most part composed of greenhouse species, one or two, however, being hardy: they are not remarkable for beauty. Some are shrubby, and these propagate by cuttings; others are bulbous, and are increased by means of offsets. They may all be grown in sandy loam and peat.

ANTHOCERCIS.—The common species, *A. viscosa*, is a greenhouse evergreen shrub, which, with careful culture, is a very pretty plant. The cuttings strike freely in sand under a bell-glass, with a mild bottom heat; and the cuttings, after they are struck, should be potted in the smallest sized pots, in two-thirds loam from rotted turves, and one third peat earth. As soon as the plants have begun to grow, pinch off the tops, to induce lateral shoots; and when the pots are filled with

roots, remove the plants to those pots next in size; continue growing them all the summer, in frames, or in the greenhouse near the glass, and with plenty of air. Whenever any of the shoots are too vigorous, they should be checked, both for the sake of keeping the specimen within bounds, and to induce the side shoots, for the blooms come towards the end of all the shoots.

ANTHOLYZA.—Bulbous plants from the Cape of Good Hope, but capable of standing out in sheltered gardens, if planted deep, beyond the influence of ordinary frosts. A sandy loam is the best soil for them, and they require merely to be planted out, and left undisturbed for several years. They increase by offsets. *A. æthiopica* has the flowers scarlet and green, and blooms in June.

LUPINUS (Lupine).—A group of about fifty species, including annuals, perennial herbs, and some few sub-shrubby species, nearly all perfectly hardy in this climate. They are easily cultivated, and possess considerable general resemblance throughout the family, so that in a limited garden but a few of the kinds are required. Of the annuals the best are, *L. nanus*, dwarf, blue, very pretty; *L. luteus*, yellow, growing about a foot and a half high; and *L. Hartwegii*, blue, of about the same size. Of the perennials, the best for a small garden, or indeed for any garden, are, *L. polyphyllus*, blue; *L. p. albus*, white; and *L. macrophyllus*, purple. These are all of the same habit, throwing up long pyramidal closely-set spikes of flowers, from two to four feet in height, according to the strength of the plant. When these two kinds are raised from the seeds, all shades of blue and purple are obtained. The annuals should be sown in March and April where they are to flower. The perennials are increased by parting the roots, or by seeds, which ripen abundantly, and may be sown in June; the strongest of the plants will then blossom the following year. All the species above-named blossom between May and August. *L. polyphyllus* and *L. nanus* are decidedly the two best lupines at present known.

POINSETTIA.—These very curious plants, when first introduced, were called *Euphorbias*, of which natural order they are members. The bloom is insignificant, but the bracts are splendid, and these spread round the base of the head of proper though trifling flowers, as if they were part of the flower itself. They are stove plants, and grow best in two-

thirds loam from rotted turves, which contains of course a great proportion of vegetable mould; or if plain loam be used, there must be half its quantity of vegetable mould mixed with it. The plant will grow from cuttings or from eyes. The cuttings need have but two joints, one under the surface to strike out roots, and one above to form the plant. Those in bottom-heat soon strike root, when they must be potted off into moderately small pots, say forty-eights, and be grown in the stove, very freely watered, and shifted as soon as they fill the pots with fibres. As soon as the plants have done flowering, they may be cut down to within two or three eyes of the old wood, and the shoots cut off may be divided into pieces to use as cuttings to strike. Some cut them up to eyes, an inch of wood, with the joint in the middle, and plant them round the edge of a pot as they would beans, when they root and grow from the same place; and when grown enough, pot them singly, and grow them. There is but one species cultivated, *P. pulcherrima,* in which the large leaf-like bracts are of a most brilliant scarlet; but there is a variety called *albida,* in which the bracts are of a yellowish white or cream colour. They may be had in bloom at any period, according to the time when they are started into growth. If started in spring, not too early, and grown slowly on, they come into flower in autumn or the early part of winter, and last a long time.

CITRUS (Orange-tree).—This is a well known and favourite genus of greenhouse evergreen shrubs or small trees, cultivated for the sake of their highly fragrant flowers, their richly coloured fruit, and the generally interesting appearance of their habit of growth. The genus contains *C. Aurantium,* the common orange; *C. vulgaris,* the Seville; *C. medica,* the citron; *C. limonum,* the lemon; *C. acida,* the lime; *C. decumana,* the shaddock; several other species, and numerous varieties of some of those here enumerated. These trees require essentially the same treatment. Pot or tub them in compost of loam from rotted turves and half its quantity of decomposed cow-dung. Let them have the open air from the latter end of July till the beginning of September, with plenty of water, and an occasional syringe over the foliage with a garden engine and fine rose. Cuttings will strike freely, but it is better to raise stocks from seed, and graft the fine varieties upon them. The grafting may be done in any fashion, so that the cut part of the stock and the cut part of the scion fit

closely, and the barks meet on one side. They may be grafted by inarching, as camellias are done, or cleft-grafted like the rose, or spliced like a broken stick. When done by inarching, a strong neat branching bit of the tree may be taken, and with fruit already on it; so that a tree is formed as soon as the stock and the head are united. In cases where they are inarched, it is chiefly for the sake of making very dwarf plants, and having them very soon ready for sale or use. The stock is worked as close down to the surface as possible, so that the plant is formed very dwarf, and with fruit already on it, in a few weeks. All the orange and lemon tribe are housed early in September, and although they must not have too much water, they must not be neglected. April is the best month to shift their tubs or pots. Large plants in tubs must be looked to, and part of the surface soil taken off, to be replaced with fresh compost, and in the spring a little liquid manure of sheep's dung is beneficial.—See *Horticultural Magazine*, Part 50.

IPOMŒA—(See p. 178); *I. Horsfalliæ*, there mentioned as one of the best of the stove species, and which is more durable than most of the species, from the thick texture of its blossoms, will grow ten or fifteen feet before it flowers, and it has been attempted to prevent this by taking off the top when it is about six feet long. This induces lateral branches or shoots; and as there are no blooms anywhere but at the ends of the shoots, the stopping and thus inducing side branches, although it delayed the flowering, caused more in the end. It has been grown well on the roof of a stove, running from one end to the other of the house, and without any flowers except a bunch at the furthest end. But it has been grown like a vine at the back of a stove, and stopped for the purpose of producing lateral shoots, and in this way there were as many bunches of bloom as there were shoots, and the plant looked very well. This plant may be grown and bloomed in a large-sized pot, but the branches have to be well managed, and the trellis very large to take them.

CALOCHORTUS.—A small genus of very beautiful bulbous plants, which appear difficult of cultivation. They are Californian, and seem to do best when planted out into a frame in a bed of prepared soil, consisting of sandy peat with about a fourth part of loam added. In the frame they can be kept dry and cool in winter, during their resting season. They are

propagated by offsets. There are half-a-dozen sorts, all very desirable, but perhaps a preference may rest with the following:—*C. venustus*, variegated; *C. splendens*, purple; and *C. elegans*, white. They flower from June to August.

CYCLOBOTHRA.—A small genus of hardy bulbs, similar in habit to the *Calochortus*, and requiring similar treatment. *C. purpurea*, purple and yellow, and *C. pulchella*, yellow, are pretty kinds, flowering in July and August.

CERINTHE (Honey-wort).—Hardy annuals of the coarser sort; requiring to be sown in March where they are to flower, and thinned out to three or four plants in a patch, as soon as they are large enough to crowd each other. *C. major* has yellow tubular flowers, with a band of purple, and blooms in July and August.

LANTANA.—An extensive family of which the species are mostly regarded as stove plants; they are, with a single exception, shrubs. The most commonly cultivated kinds are *L. Sellowiana*, a small-leaved dwarf species, with rose-purple flowers, blossoming all through the summer; and the following larger-growing kinds—*L. crocea*, orange, May to August; *L. nivea*, white, July to September; *L. mutabilis*, creamy-white, changing to rose, May to September; and *L. aculeata*, changeable orange, April to November. The larger species should be kept nearly dry in winter, when they will lose their foliage. In spring, about February, they are to be pruned hard back, and started to grow in a stove, or warm pit. They are free growers, and require to be shifted into larger pots as their roots become numerous; they should have a free and rather rich loamy soil, consisting of loam, peat, and leaf-mould equal parts, with sand added, if necessary. The young shoots in spring should be freely stopped, to produce bushy growth. *L. Sellowiana* prefers a larger proportion of peat earth in the compost, and though rested by comparative dryness and coolness in winter, ought not to be dried so much as the larger sorts. It is best to raise young plants of this from cuttings during summer, to be shifted on for flowering the following spring. These latter do not require the temperature of the stove, that of an intermediate house suits them best. In warm and dry situations, where the soil is rather sandy, it even forms good beds in the flower-garden, looking like a purple verbena; and some of the larger orange-flowered species succeed under the same treatment in favourable summers. They

may be considered as greenhouse plants, if they can be started in spring, in a frame or warmer house. Cuttings root very readily in sand, planted in the usual way, and set in a hot-bed.

SPECULARIA (Venus's Looking-glass).—A small family of hardy annuals, formerly comprised under *Campanula.* The common kind, *S. speculum,* with purplish-lilac flowers, and varieties having white and rose-coloured flowers, are distinct and pretty, and they are the most interesting of the genus. This species forms a small spreading mass of about nine inches high, and may be had in bloom for the whole summer by successive sowing, from March to June. The seeds may be sown—very thinly, for they are very small—in the open border, and should be very lightly covered. Thin out the plants well as soon as they are large enough to pick out those not required; six or eight plants are enough to form a patch.

SCUTELLARIA (Skull-cap).—A rather numerous family of dwarf herbaceous perennials, some of which are very ornamental. They are mostly hardy, in which group are included *S. japonica,* deep blue, May to August; *S. grandiflora,* red and yellow, July and August; *S. alpina,* blue, June to October; *S. lupulina,* yellow, June to September; and *S. galericulata,* a native species, having blue flowers, from June to September. These are all showy, and worth growing in the mixed flower borders; the first requires a dryish situation, but they are not particular as to soil, and are readily increased by division, or, where the roots are coarse and indivisible, by planting as cuttings the young shoots produced from the crowns of the roots in spring. There is another small set requiring greenhouse protection, at least in winter; of these, the most beautiful species are *S. splendens* and *S. Ventenatii,* two that produce scarlet flowers about the latter end of summer. They are increased by cuttings planted in sandy soil, and placed in a mild hot-bed; and the plants should be potted into rich soil of loam and leaf-mould, if grown in pots; but they may be planted out in a warm situation in the flower-garden by the beginning of June, to come into flower about August.

ENKIANTHUS.—Greenhouse evergreen shrubs of considerable interest and beauty. There are two species, *E. quinqueflorus* and *E. reticulatus,* both having pinkish, vase-

shaped, drooping flowers, the former flowering in May, the latter earlier in spring. They are increased by cuttings of the ripe wood, planted in sand under bell-glasses, without bottom-heat. An equal mixture of loam and peat-earth forms a proper compost for them, but they must be potted very carefully, as the roots are liable to get out of order, especially if they are over-watered when not growing. They are very ornamental, when large and healthy.

HYPERICUM (St. John's Wort).—A large family containing many hardy species, both perennial herbs and shrubs, and some greenhouse and frame species. *H. pulchrum* is a pretty hardy perennial, flowering in July and August, and grows readily in sandy soils. *H. calycinum* is a dwarf woody species, with large showy blossoms, from June to September: this grows freely, even under the shade of trees; and the following greenhouse shrubs are pretty, growing in a compost of sandy peat and loam, and propagate freely by cuttings:—*H. balearicum*, summer; *H. ægyptiacum*, summer; *H. Coris*, summer. Yellow is almost universally the colour of the flowers in this genus.

PORTULACA (Purslane).—A genus containing some hardy annuals of little interest, and some frame or half-hardy annuals of considerable beauty. They require, however, a light, warm soil, and a warm, sunny situation. When the soil and situation, however, agree with them, they form very fine objects. Grown carefully in pots for the greenhouse, they are also very ornamental. The seeds should be sown in a hot-bed early in March, and the plants nursed on in frames, not too warm, being at first potted singly, and then shifted on as they may require until the beginning of June, when they may be either planted out, or shifted finally for blooming in pots. The most showy species are, *P. Thellusonii*, crimson, and *P. splendens*, purple; both flower from May to September or October, or sometimes even later.

COMMELYNA.—A genus containing many species, all of which, with a single exception, are perennials; several require stove heat, some few greenhouse or frame protection, the remainder being hardy. Of the latter set, two interesting species for the flower-garden are, *C. tuberosa* and *C. cœlestis*, both producing blue flowers from July to September. They are tuberous rooted, and grow well in peat-soil, but do not refuse to flourish in good light garden-soil. The tubers

should be taken up in winter, and preserved in a pot, being planted out again in spring. They increase freely from seeds.

VERATRUM.—Tall and rather coarse-looking hardy herbaceous plants, of little beauty as regards their flowers, but having a very distinct habit and appearance, and therefore desirable in large mixed borders; they increase by division, and grow in ordinary garden-soil. *V. nigrum*, of which the flowers are of a chocolate colour, produced in a dense, upright panicle, in the months of June and July, is the most desirable species for ornamental purposes.

SPHENOGYNE.—A genus of composite plants, consisting of hardy annuals and greenhouse shrubs. The most useful is *S. speciosa*, a very pretty half-hardy annual, growing about a foot high, with finely divided leaves, and large orange and black flowers produced freely, and to be had in succession through the summer by successive sowings. The first may be sown in a gentle hot-bed in March; these may be followed by others in the open ground in April, May, and June. The plants grow well in ordinary garden-soil, and in favourable seasons are very ornamental.

STYLIDIUM (Style-wort).—Very distinct and pretty-looking plants, of which nearly thirty are recorded as having been introduced, but very few of these are now to be met with. They are for the most part greenhouse perennials. *S. graminifolium* is a very pretty kind, with rose-coloured flowers from May to August; *S. fasciculatum* has pink flowers, in August and September; *S. ciliatum* has yellow flowers, from May to July. They like a soil of rather sandy peat-earth, and do not require very large pots, being of humble growth. When seeds are obtained, they produce the best young plants: sow as soon as ripe in sandy peat, and keep in the greenhouse. The young shoots taken off and planted in sand, as cuttings, form healthy young plants.

SELAGO.—A group of pretty greenhouse soft-wooded shrubs of easy culture, growing freely from cuttings planted in sand and placed in a hot-bed, and thriving in a light open compost of turfy peat and loam. *S. distans*, lilac, and *S. Gillii*, rose, are two of the most interesting and pretty species, and these are almost constantly in blossom, under good management.

SINNINGIA.—A small genus allied to *Gloxinia*, and requiring similar management. *S. guttata* is an interesting species, having white spotted flowers, from June to August.

S. Youngeana is a handsome hybrid, with white and purple flowers, produced during the summer months.

SISYRINCHIUM.—A group of small plants of the Iris family, mostly regarded as frame perennials. *S. anceps*, blue, and *S. grandiflorum*, dark purple, are pretty hardy ones, flowering in summer. They prefer a bed of peat-soil, and propagate by division. The frame species should be potted in the same kind of soil, and should not be over-watered in winter. Among them are, *S. speciosum*, blue and yellow; *S. junceum*, lilac; and *S. graminifolium*, yellow: they bloom at different periods of the summer.

CYPRIPEDIUM (Lady's-Slipper).—A group of beautiful herbaceous perennials of the orchidaceous race, of which there are about a dozen hardy and some half-dozen stove species. The latter are easily cultivated in a moist heated atmosphere, such as the orchideous family generally require, and may be potted in rough turfy peat. They must not be over-watered at the root, nor should cold water be poured about their roots or hearts at any time. They increase by division. Some of the most distinct are *C. insigne*, the flowers of which are green, white, brown, and purple, and are produced usually from July to October; *C. barbatum*, purple and green, September to January; and *C. Irapeanum*, yellow, June and July. The hardy ones are more difficult to cultivate, and can only be well managed in a cold shady frame, kept almost constantly closed during summer, in order to keep up a cool, calm, and moist atmosphere. A bed of peat earth should be made up, and the roots planted out in it. This bed should be covered on the surface with moss, to keep it regularly and constantly moist. They may be kept in pots of peat-soil, and set into a similar frame. Whether grown in pots, or planted out, they do not at all like to be disturbed, and should therefore be re-planted or re-potted as seldom as possible. Of the hardy set, the following may be selected for variety:—*C. Calceolus*, yellow and brown, May to July; *C. spectabile*, purple and white, June and July; *C. humile*, purple and white, June and July; *C. pubescens*, yellow, May to July. It is a remarkable as well as beautiful family, and is worth any trouble to secure its successful cultivation.

VELTHEIMIA.—Interesting, but not very showy plants, of the amaryllidaceous family. They have bulbous roots, and broad spreading leaves, from the centre of which grow up the

upright spikes of drooping tubular flowers. They grow in light soil, of a loamy nature, and are readily increased by offsets; even the leaves pulled off close to the bulbs, and planted, will produce young bulbs from their base. *V. viridifolia* has pale reddish-coloured flowers, between November and April; and *V. glauca* has them, flesh-coloured, about March or April. They require the protection of the greenhouse.

SOLLYA.—A very pretty small group of evergreen greenhouse climbing shrubs, bearing small bunches of neat blue flowers. They are vigorous growers, extending with a woody stem some ten or twelve feet; but the parts being small, they may readily be trained on a cylinder-trellis, so as to form a bush-like outline, and to admit of their being cultivated in pots. For front pillars in greenhouses and conservatories, however, they are well suited. They should have a compost of equal parts loam and peat; and increase, either by cuttings or seeds, with facility. *S. heterophylla* has the larger foliage and paler blue flowers, produced in the summer and autumn; *S. linearis* has smaller and narrower leaves, and deeper blue flowers, produced from May to October. Of the two, the latter is preferable.

CRASSULA.—A genus of succulent plants, requiring to be grown in the greenhouse. The most ornamental group of the old Crassulas has been removed from the genus, and is now called *Kalosanthes*. *C. lactea* is a pretty species, with white flowers, produced in autumn and winter. Others, such as *C. cordata*, *C. lycopodioides*, and *C. perfossa*, have curious succulent leaves, and are interesting on that account. They grow in sandy loam, mixed with brick rubbish, and require to be kept dry in winter, during which season they should have no more water than will just prevent their shrivelling. Cuttings root very freely, if suffered to dry a little before planting them.

BRYOPHYLLUM.—A curious succulent greenhouse plant, with an upright stem and opposite ovate, three, sometimes five-lobed leaves. The flowers terminate the branches in a terminal spreading bunch. They are tubular, and yellowish red, produced from April to July. The species is *B. calycinum*. It requires the same treatment as *Crassula*. Interesting from the fact, that the leaves laid flat on a pot of soil, will produce a number of young plants from the indentations on their margins.

KALANCHÖE.—A group of succulents requiring the greenhouse. They require the same treatment as *Crassula*, and are remarkable for the property of producing young plants from the margins of their leaves, when these are laid on the surface of damp soil. *K. crenata* has yellow flowers, in August and September.

DISOCACTUS.—A pretty cactaceous plant, requiring the general treatment of *Epiphyllum*, and producing pretty purplish flowers, succeeded by blood-coloured berries. It is rather of a trailing habit. The only species known is *D. biformis.*

DRABA (Whitlow-grass). — Hardy perennials, of small size, adapted for rock-work, and growing readily with the least possible cultivation. Many of them are pretty plants for rockeries, among which is *D. aizodes*, yellow, blooming in March and April, a native of England. They increase by division.

EUCHARIDIUM. — A genus of hardy annuals, nearly allied to *Clarkia*, and requiring the same treatment; the plants are smaller. *E. concinnum* and *E. grandiflorum* both have rose-coloured flowers, and come into bloom about June. They are neat, but not very showy.

GASTROLOBIUM.—One of the papilionaceous, or butterfly-flowered families of evergreen greenhouse shrubs. *G. spinosum*, and *G. retusum*, yellow and orange, flowering in early spring, are two pretty kinds. They require the same treatment as *Dillwynia.*

HENFREYA.—*H. scandens* is a pretty and free-flowering stove evergreen climbing plant, bearing panicles of large white funnel-shaped flowers, in the early spring months. It requires stove heat, and a compost of turfy loam and peat, in equal proportions, mixed with sand to make it porous. It should be repotted in the beginning of summer, after it has ceased to produce its flowers. Propagated by cuttings planted in sand, and placed in a close warm frame.

HOLBOLLIA.—Greenhouse evergreen twiners, of the easiest culture, requiring light soil, and increased by cuttings. *H. latifolia* produces its green flowers, which are pretty, notwithstanding their colour, in March and April. These flowers are fragrant.

IONOPSIDIUM.—This genus contains one hardy annual species, a pretty dwarf plant, beautiful for rock-work in a shady situation, or for pot-culture. It forms a tuft close to

the soil, studded with numerous lilac flowers in the height of summer. The species is called *I. acaule.*

IXIOLIRION. — *I. montanum* is a pretty hardy bulb, which will grow readily in the ordinary good garden-soil, and is increased, like most other bulbous-rooted plants, by offsets from the parent bulbs. It also bears seeds, by which it may be increased. The flowers of this species are blue, and they are produced about June.

LŒSELIA. — Greenhouse evergreen sub-shrubs, rather pretty, especially *L. mexicana,* which has scarlet tubular flowers at the end of summer. They strike from cuttings, and should be potted in a light mixture of loam, peat, and sand. They are apt to die off suddenly, and consequently must be very carefully watered at all times, especially in winter.

CROCUS.—A well-known family of dwarf hardy bulbs, with grassy leaves and showy flowers, of great variety of colour. The crocus is most popularly known as a spring flower, peeping up almost from amongst the snow. The spring crocuses come into bloom some time in February, and continue more or less in bloom until the beginning of April; this succession of bloom being obtained by earlier and later planting, and by placing them in different situations and aspects. No flowers are more easily cultivated than the crocus; they grow in any ordinary garden-soil, and multiply rapidly by offsets. The bulbs, or corms, should be planted in October or November, about two inches below the surface, in rows or patches. They are suitable for edgings to flower-borders, or they may form small beds by themselves. In either case, the bulbs should not be inserted singly; they are far more effective if put in groups of six, twelve, or even more, the groups being proportionately distant. Single bulbs would require placing within a couple of inches of each other, to produce any display. There are several spring-flowered species, such as *C. mœsiacus,* the great yellow; *C. susianus,* the cloth of gold; *C. biflorus,* Scotch, white and purple; *C. versicolor,* white and blue; but varieties of distinct colours are sold in the seed-shops, without reference to the species; and some very fine ones, chiefly from *C. versicolor,* have been obtained from seeds. There is another race of crocuses, the autumn-bloomers, which comprises some very splendid species; and the latter of these, blooming in the end of October and through November, are equally useful, as ornaments, with

the spring crocuses, in consequence of blooming when other flowers are scarce. These are, however, many of them, very scarce. They should be planted in June and July, and in other respects require precisely the same treatment as the others. Of these autumn bloomers, the following sorts are very fine:—*C. speciosus*, blue; *C. Cartwrightianus*, white and purple; *C. pulchellus*, pale bluish pearl colour, with darker veins; *C. Boryanus*, white; *C. odorus*, lilac, with golden throat; *C. medius*, violet.

ORNITHOGALUM (Star of Bethlehem).—A large genus of bulbous plants, containing about a score of hardy species, and about twice that number requiring the protection of a frame against frost. They grow readily in rich, light, loamy soil, the hardy ones planted out in the open borders or in beds, and the tender ones potted and kept in a frame, or on a shelf in a cool greenhouse. The flowers are star-like, and in the majority of instances white, often streaked inside or out with green. *O. aureum* is a showy golden-coloured exception, which blooms in June and July. *O. niveum* blooms white, from June to August; *O. corymbosum*, white, April to August; *O. lacteum*, white, June and July. These all require a frame. Among the hardy ones are, *O. umbellatum*, white and green, April to June; *O. montanum*, white and green, May and June; *O. pyramidale*, white, June and July; *O. arabicum*, white, March and April; *O. narbonense*, white and green, July and August. The taller species, with their long spikes of starry flowers, are very ornamental. All the species increase by means of offsets, as is the case with other bulbs.

LIEBIGIA.—A stove genus, requiring the treatment of the shrubby *Gesneras*. The only species is *L. speciosa*, a tall plant, with white and purple two-lipped blossoms produced from the axils of the rather large leaves; it blooms in autumn.

MANGLESIA.—A small group of evergreen greenhouse shrubs, with interesting foliage, which is neat-looking, and toothed; the flowers are small, and of no beauty. The plants grow in the ordinary compost for hard-wooded shrubs, namely equal parts loam and peat, and require frequent stopping to induce a bushy habit. *M. glabrata* is a neat-looking species.

MARIANTHUS.—A beautiful twining shrub, requiring the temperature of the greenhouse, and, like *Sollya*, growing in a mixture of loam and peat in equal proportions, made rather sandy. They are admirable plants for training on

cylindrical trellises, which they clothe with numerous long slender branches, and dense clusters of pretty light-blue flowers, produced in April and May. The species is *M. cœruleo-punctatus*, so named from a black spot which occurs on each of the greyish-blue petals.

MINA.—A pretty greenhouse climbing annual or biennial plant, belonging to the group of convolvulaceous plants, which it resembles in the appearance of its foliage; but its flowers are produced, unlike most convolvuli, in one-sided forked racemes, and are of so singular a contracted form at the mouth, that were the leaves removed, its relation would hardly be suspected; the blossoms are at first a bright rosy crimson, changing as they expand, first to orange, and then to pale yellow. The seeds should be reared in a slight hot-bed, potted separately, and shifted on into larger pots as they advance in growth, using a light rich compost of loam, leaf-mould, and peat-soil. It is increased by cuttings as well as by seeds. Only one species is known, *M. lobata*, which flowers in June, and is very scarce.

NIPHÆA.—Pretty dwarf free-flowering tuberous-rooted herbs, which require to be grown in a temperature but slightly warmer than that of a greenhouse, the additional warmth being principally required at the time of starting the tubers into growth. They should be grown in flat wide pots, in a compost of three-fourths leaf-mould to one-fourth loam. During winter they should be kept quite dry. *N. oblonga* and *N. rubida*, both having white flowers, and flowering about September, if started into growth in March, are pretty, and worth cultivating.

PENTAS.—A pretty soft-wooded stove family, of evergreen growth and free-flowering habit; *P. carnea*, which has flesh-coloured flowers, being almost always in bloom. It should be raised annually from cuttings, which root readily in a hot-bed, and the young plants must be stopped frequently until a bushy plant is formed, when they may be allowed to grow away for flowers, which will be continued in succession for a long time, if the plants have nourishment enough to support them. Cuttings rooted in spring and autumn, will almost keep up a constant succession of flowers. The soil should be a mixture of loam, peat, and leaf-mould. The tips of the shoots must not be removed when the plants are required to produce their blossoms: these come in good-sized bunches, and have a

slender tube of moderate length ending in five star-like divisions.

PENTLANDIA.—A genus of bulbs requiring to be grown in a frame or cool greenhouse. They are amaryllidaceous, and should be grown in a rich loamy soil, with a season of rest. *P. miniata* is a pretty species with red flowers, produced towards the end of summer.

PHÆDRANASSA.—A showy genus of greenhouse bulbous plants, requiring the treatment of *Phycella*. They are amaryllidaceous. *P. chloracra* has drooping crimson and green flowers, produced in winter. Like the *Phycellas*, they are multiplied by offsets from the bulbs.

PODOTHECA.—A genus of annuals of no great beauty. They may be sown in the open borders in March or April, and come into bloom about June. *P. capitata* and *P. gnaphaloides* have yellow flowers, which are of the composite kind.

PORPHYROCOMA.—*P. lanceolata* is a stove evergreen soft-wooded shrub, bearing at the ends of its shoots a compact spike of violet-purple flowers, issuing from chocolate-coloured densely imbricated bracts; it flowers during summer. The plant is easily multiplied by cuttings placed in a hot-bed, and grows well in a compost of loam and leaf-mould in equal proportions.

PYROLIRION (Fire-lily).—Pretty greenhouse bulbs, which should be potted in sandy loam, and are the better for a little extra heat to start them into growth; they are amaryllidaceous, and multiply by offsets. *P. aureum* has golden-coloured, *P. flavum* yellow, flowers: they flower about May or June.

SCYPHANTHUS.—A handsome climbing plant, related to *Loasa*, and best treated as an annual. It may be grown in pots on trellises, or on the rafters of the greenhouse, or may be planted out for the summer in warm situations where the soil is light and dryish. In pots, it should be grown in a sandy mixture of loam and leaf-mould. The seeds should be sown in February, in a mild hot-bed, and nursed on till they are able to bear the temperature of the greenhouse. *S. elegans* has pretty yellow flowers, and comes into bloom towards the end of summer.

SIEVERSIA.—Hardy perennials, with the habit and structure of *Geum*, and requiring similar treatment. They are mostly dwarf plants, and grow in light garden-soil, increase being effected by dividing the roots. *S. montana* and *S. triflora*, both of which have yellow flowers, are pretty, and bloom in June and July.

STENOMESSON.—Pretty amaryllidaceous bulbous plants of the smaller sort, mostly requiring only greenhouse protection. There are several species, of which *S. croceum*, orange; *S. coccineum*, scarlet; and *S. flavum*, yellow, all blooming about May, afford a desirable variety. Like other bulbs of this class, they require to be kept dry when at rest, but should have an abundant supply of water while growing. A sandy mixture of loam and peat suits them best.

TETRANEMA.—A pretty herbaceous evergreen plant, requiring a temperature intermediate between that of a stove and a greenhouse. The species *T. mexicana* has pretty purple blossoms, produced in June and July. It should be potted in a compost of loam, peat, and leaf-mould, in equal parts; and if kept rather dry and warm during winter, and gently excited in spring, it will grow and blossom in a close greenhouse for a great part of the summer. It ripens seed freely, by which it may be propagated; the seed may be sown as soon as ripe, and kept in a warm greenhouse or pit.

THOMASIA.—Greenhouse hard-wooded shrubs of a peculiar aspect, easily cultivated, and forming a pretty variety in a mixed collection. They increase by cuttings in sand, under bell-glasses; and grow in turfy peat soil, with about a third part of sandy loam added. The plants should be rather closely topped and frequently repotted while young, to encourage growth, and to produce bushiness of habit; but when a foot or so in height, they may be allowed to progress more slowly, and will flower abundantly. *T. purpurea*, purple, and *T. solanacea*, white, are perhaps the most useful species.

UVULARIA.—A small group of hardy dwarf perennial plants, not very showy, but distinct, and worth a place in mixed borders. They grow freely in garden-soil, but prefer a situation cool in summer. They increase by division. *U. perfoliata* and *U. grandiflora*, both yellow, blooming in May and June, are desirable kinds.

CHAMÆNERION.—A genus of hardy herbaceous perennials of the easiest culture in the open ground, and of an ornamental character. *C. spicatum*, formerly called *Epilobium angustifolium*, is very showy, bearing red flowers in July and August; *C. s. albiflorum* is of the same habit, with white flowers; *C. rosmarinifolium* and *C. Halleri* (*Epilobium Dodonæi*) both have red flowers in June, July, and August. They increase with facility by division of the root.

SPIRÆA.—A very interesting tribe of hardy plants, some of them herbaceous perennials, others deciduous shrubs, handsome when in flower; nearly all bear white flowers in pyramidal spikes. The herbaceous kinds are beautiful in pots or in the borders, and the shrubs are pretty in plantations and dressed grounds. The former are propagated by parting the roots and cuttings, and the latter by layers and cuttings of the young wood. The herbaceous kinds spread a good deal, and may be divided easily. This should be done as soon as the bloom declines. The rarer kinds should be potted until they have established themselves, and may then be planted in the open border; the others may be parted, and planted out at once. The shrubs are very useful in clumps, and can be trained, or rather pruned, to any form. They should be layered in autumn; a slit should be cut under a joint, and the branch pegged down below the surface; the next autumn the layers may be cut off and planted in nursery beds, about a foot apart, to grow into strength; they may be pruned into form while there, and when they grow too large for their distance, every other plant may be taken up and planted in other beds, eighteen inches or two feet apart, or be placed at once where they are to remain. Of the perennials, *S. Aruncus*, *S. palmata*, *S. Filipendula*, and *S. F. multiplex* are among the most ornamental; they bloom from June to October. There are about forty shrubby species, of which we should select—*S. hypericifolia*, white, April and May; *S. bella*, rose, June to September; *S. Douglasii*, rose, July and August; *S. opulifolia*, white, June and July; *S. ulmifolia*, white, June and July; *S. ariæfolia*, white, June to August.

HOTEIA.—*H. barbata*, formerly called *Spiræa japonica*, is a very handsome, hardy perennial, producing white flowers between April and July. It requires the same treatment as the herbaceous species of *Spiræa*, and may be considered as one of the best of them for a select garden.

SCHIZONOTIS.—A small set of hardy shrubs, separated from *Spiræa*, and differing in having pinnate leaves. *S. tomentosus (Spiræa Lindleyana)* blooms from May to September, having white flowers, and is a desirable, hardy shrub, requiring the same mode of management as the shrubby species of *Spiræa*, from which this genus has been separated.

AJUGA (Bugle).—A genus of hardy plants, containing several perennials and some annuals; the latter are of little

interest in a garden; but some of the former are neat plants for damp rockwork, or for the flower borders in a cool situation. They like a rather peaty soil, not liable to become excessively dried up in summer; under such circumstances, they flourish with little trouble after the first planting, until they require reducing within limit, for their habit is to spread more or less rapidly over the surface. They are readily increased by division. The best sorts are, *A. alpina*, blue; *A. genevensis*, blue; and *A. reptans alba*, white; all flowering in the months of May and June, sometimes prolonged into July.

CLIANTHUS (Glory Pea).—This genus contains two species, of which the most important is *C. puniceus*, a noble plant, growing to the height of ten feet, in a straggling, branching way, but sufficiently sturdy to train into a bush, if kept constantly topped while young. The flowers are large, pea-like, rich scarlet, and hang in loose racemes from the boughs in the early part of the summer; the foliage is pinnate, and fresh-looking, when the plant is healthy, but the flowers are the most remarkable portion of the plant. The principal claim of the plant to notice is its very striking colour and climbing habit. It can be grown in a pot, on a good large straight pillar-trellis, as big round as the pot all the way up, but it is far better against a wall, or trained on the roof of a greenhouse; it is not hardy, but it is not killed by a slight frost; it is therefore set down as a frame plant, which, considering it climbs a considerable height is not quite the thing. Cuttings strike easily in sand, on bottom heat; the plant grows well in loam, peat, and sand; it will grow well on a south wall, if protected by mats and litter about the roots through the winter. The cuttings, when rooted, should be kept in small pots until filled with roots, and not changed until it feels the want of room; this check before any change, brings it into flower earlier than it would be brought if allowed to grow as fast as it would with ample room. When it is in the largest pot you mean it to occupy, place it where it is to run up, or find it a permanent trellis, on which it may be supported.

TRITOMA.—A genus of very pretty hardy herbaceous plants, requiring a light dry soil, and warm or sheltered situation, in which they produce their upright spikes of drooping scarlet tubes, freely, in the autumnal months. They should have a border under shelter of a wall; and the soil should be sandy. They throw out suckers from their roots, by which

they may be increased. *T. Uvaria*, *T. Burchellii*, and *T. pumila*, are the preferable sorts, and the blossoms of all are of some shade of orange scarlet.

ALETRIS (Colic-root). — A North American genus of curious perennials, hardy, but requiring a cool, moist situation, and a soil in which peat earth preponderates. They increase by offsets. *A farinosa* bears white flowers, in June.

WITSENIA.—Greenhouse shrubs, of curious appearance, having grass-like, or rather iris-like leaves, arranged too in the same equitant manner. There are three or four species, but the best is *W. corymbosa*, which all through the summer bears branching heads of small pale blue flowers. It is a favourite among greenhouse plants, multiplies very fast by spreading offsets, and is not conspicuous until it has spread to a good-sized pot full. When required to be increased, small portions may be easily removed from round the outside, so as scarcely to be missed from the old plant; these are to be potted into sixty-sized pots, in three parts peat soil and one part sandy loam, with a good drainage at the bottom of the pot; they should be placed on a shelf near the glass, and as soon as their roots fill the pots, they should be removed to size forty-eight, and from these to larger ones, the plant generally filling the top as fast as the roots fill the inside. They require, from the lightness of the soil, rather close attention to the watering; and the plant soon looks untidy, if the dead leaves be not picked off as they decay. Few plants are more carelessly treated than old specimens of the Witsenia, and consequently they are rarely seen in good order, even at nurseries.

ANACAMPSEROS.—Small succulent plants, requiring the treatment of other greenhouse succulents. *A. arachnoides* and *A. filamentosa*, are amongst the most interesting species, which are grown for the appearance of their fleshy leaves, rather than for their flowers.

ARCTOTIS (Bear's-ear).—Greenhouse composite perennial herbs, for the most part. They are of easy growth, in the ordinary mixture of loam and peat, and propagate by division. Some are showy, as *A. grandiflora*, which has large orange-coloured flowers from March to May. *A. acaulis* has yellow flowers from May to July. Many of the species are remarkable for having the under surface of their leaves covered with a close white wool, and this, together with the form of the leaves, gives them a distinct appearance among other plants.

ASARUM (Asarabacca).—Hardy perennials, dwarf, and remarkable more from the curious structure of their flowers, than for their beauty. They grow rapidly in a cool, moist soil, but are apt to dwindle in situations where the soil is hot and dry, otherwise they are perfectly hardy. They bloom in May and June, the colour of the flowers being purplish. *A. canadense* and *A. virginicum* may be selected.

ASTRAGALUS (Milk Vetch).—A very large family of plants, all hardy, or nearly so, and the majority perennial. The large species grow readily in the common borders, and the smaller ones should be planted on rockwork. They are increased by seeds or by division, according to their habit. Of the smaller pretty species, are *A. hypoglottis*, purplish blue and white, June and July; *A. austriacus*, blue and purple, May and June; *A. Onobrychis*, purple, or white, June and July; *A. odoratus*, pale yellow, June and July; and *A. monspessulanus*, purple, June to August. *A. alopecuroides* is a taller plant, with yellow flowers in a fox-tail-like head, in the months of June and July.

NEPENTHES (Pitcher-plant).—A most extraordinary race of plants, the peculiarity of which lies in the organs called pitchers, from which the plants derive their name. The plants are shrubby, and the leaves have a most extraordinary appendage at the end of each, in the form of a complete pitcher with a lid to it, which opens and shuts at the pleasure of the plant, if we can imagine a plant to have a will of its own. This pitcher is partially filled with a liquid (hence its name)—a liquid distilled from the plant. The flowers are inconsiderable, and form no part of their claim as ornamental subjects. They require the stove, and grow well in turfy peat soil, mixed with sphagnum, as used for orchids. If not grown too rapidly, they form handsome pyramidal trees, the single leaves expanding wider at the bottom, where they are fully developed, than those immediately above, and each tier upward being less grown, and consequently closer to the main stem. They should not be often re-potted, but should be put at once into pots that will admit of a considerable growth. Many very noble specimens have been sacrificed by being excited too much, and have gone off in consequence. Formerly *N. distillatoria* was the most striking plant of this race known in cultivation, but the last few years have added several others, some of which are certainly handsomer than the old-

fashioned pitcher-plant. Of these, are *N. Rafflesiana*, which has very large pitchers, spotted and blotched with crimson; *N. sanguinea*, also marked with crimson; and *N. albo-marginata*, which has a band of white wool round the edge of the pitcher, and is smaller than the others. We say nothing of their flowers, because, in truth, the flowers are the least interesting parts.

ATRAGENE.—Dwarf hardy climbers of the Clematis family; they grow freely in good garden soil of the common kind, and are increased by layers or by cuttings. *A. sibirica* has white, and *A. austriaca* blue flowers, the former from March to May, the latter a month or two later.

AUBRIETIA.—Pretty dwarf, spreading rock plants, multiplying to any extent by division of the plant; growing in the commonest and poorest soil. They are especially proper for rockwork, and if planted in the mixed flower border, should have two or three stones placed about them, over which their branches will prettily spread. The flowers are purple, from March to May. *A. purpurea* and *A. deltoidea* are worth growing.

BETONICA (Betony).—Hardy perennials, requiring the treatment of *Dracocephalum*. *B. grandiflora*, with purple flowers, in June and July, is a showy plant.

BLECHNUM.—A genus of ferns, of which several stove species, of elegant appearance, are easily cultivated in a hothouse. One hardy species, *B. Spicant*, is very elegant, and delights in cool, damp, shady places, and to be planted in peat soil.—*See Moore's Handbook of British Ferns.*

RICHARDIA.—*R. æthiopica*, formerly known as *Calla æthiopica*, is a favourite greenhouse or window plant. It has largish somewhat arrow-shaped leaves, on longish erect stalks, and white, oddly-shaped, but very showy flowers, the white showy part being, however, not the flower, but that which covers them, an organ called a spathe. These plants require rest, which they take at the end of summer after bloom is over. Towards winter they begin to grow, and should be then repotted into a compost of one part good light loam, one part leaf-mould, and one part decayed manure, with sand, &c., as may be requisite. The suckers should be removed, if a single-stemmed vigorous plant is preferred, but if larger thicker plants are required, it is only to shift them on into larger vessels till they get a yard across, when they look very fine, but of course get cumbrous. Small single plants are

very pretty, and are certainly preferable for windows. The plants, which form thick fleshy tubers, are to be divided, when they are dry and at rest, and the largest tubers or offsets should be selected for flowering. These plants will grow all the winter, and come into a flowering state some time between January and May, according to the time they commenced their growth.

CALTHA (Marsh-marigold).—A genus of hardy water-plants, perennials, of easy culture, and propagated by dividing the roots. They are suited for planting on the margin of a piece of water, where their showy blossoms look very brilliant. The most ornamental is the double-flowered variety of the common species (*C. palustris flore-pleno*), which blooms freely from March to May. Though growing best in the immediate vicinity of water, and most appropriate for rough scenery, they do very well in situations more remote from any body of water, if the soil is damp; and the double variety above named is by no means a despicable object among hardy perennials in a mixed border.

LUCULIA.—A small genus of very showy and ornamental shrubby plants, of which there are two species in cultivation, *L. Pinciana*, the rarer of the two, which has larger and paler, that is, blush-coloured flowers during summer; and *L. gratissima*, the flowers of which are of a deeper blush-pink, and are produced from October to February. This latter is a most fragrant and beautiful plant, which grows exceedingly well in a vinery, or even a moist stove, though it will succeed best in a greenhouse or conservatory. It is not very unlike a hydrangea, with smaller leaves, but very similar in habit, and the flowers, which are smaller, and in smaller heads, are borne at the ends of branches in a very similar way; but the perfume is very fine. Some mystery has been made as to the growth of the plant; and we are gravely told, that if it be allowed to bloom while young, it will often cause it to die. We have seen them do well in a common vinery, growing as free as any plant we know, and blooming each season from its young state upward. Cuttings may be taken from the ends of the shoots that have no bloom, and struck in sand under a bell-glass, with the aid of a common hot-bed of which the violent heat has gone off. As they become well rooted, they may be potted off in four-inch pots, and when they make a decided shoot upwards, the heart may be pinched out to cause lateral branches; or if

there are any symptoms of laterals coming without stopping the main stem, it may be left, and the plant may grow bushy enough of itself. As the pots get filled with the roots, change from four-inch to five or six-inch pots, and so continue as long as the plant grows, until it is in the largest pot you intend it to occupy. The same kind of treatment suits the rarer kind.

CANARINA.—A greenhouse perennial, with soft branching stems, and bell-shaped tawny-coloured blossoms, produced from January to April. They propagate by cuttings, or by division; and grow in a mixture of light peat and loam, in about equal parts. They are the better for a little extra warmth in the early stages of growth.

CANNABIS (Hemp).—Annual, and hardy. The common hemp (*C. sativa*), though insignificant in its flowers, and somewhat coarse, is yet a stately plant when grown freely, its erect branching stem reaching six or eight feet high, clothed with fine palmate foliage. It merely requires to be sown in common garden-soil, and the plants thinned so as to stand out separately. One or two would be quite enough in a garden. In wilderness scenery they would be quite appropriate.

RICINUS (Palma Christi).—For ordinary gardens, the *R. communis*, or Castor-oil plant, is sufficient. It is one of those plants, which, wherever there is room for them, should always find a place, for the sake of their fine expansive palmate foliage. The flowers are curious, but not showy. The seeds should be sown in a hot-bed in February, and the young plants potted singly, and grown in the frame for a few weeks, then transferred to the greenhouse or a cooler frame, and finally hardened off in a cold-frame, ready for planting out by the end of June. The soil should be made rich for them; for being grown on account of their foliage, it is desirable to encourage them, that the leaves may be fine and vigorous. The variety called *R. c. minor* is preferable, except where there is abundant space, when *R. c. major* may be grown; the leaves of the latter are considerably the largest, though both are large.

CASSIA.—A large genus, the species being mostly shrubs, and requiring stove heat; and in the majority of cases having handsome pinnated foliage. There are some annuals, some of which furnish the senna of commerce. They may be raised from cuttings, planted in sand under bell-glasses, in a moderate heat; and sometimes seeds are produced, from which, if

sown in heat, vigorous plants may be obtained. The compost for them should be of a light loamy character, such as sandy loam and peat mixed in equal proportions. They should not be too much excited, but grown on slowly. There are upwards of two hundred species known, of which about eighty have been introduced. *C. floribunda*, and *C. lævigata* are showy, shrubby species, requiring a stove; they bloom in summer. *C. corymbosa* and *C. Barclayana*, are showy greenhouse shrubs, flowering in July and August. *C. marylandica* is the only introduced hardy perennial species, and this blooms from August to October. The flowers are in all cases yellow.

CELSIA.—Hardy or frame annuals or biennials, of spiry habit, and having showy blossoms. They may be sown in the open borders, and thinned out for flowering, or raised in nursery-beds, and transplanted. June is the time for sowing. *C. Arcturus* has yellow flowers, and *C. cretica* has yellow and purple flowers, blooming from July to September; they are biennials, and are hardy in light, dry soils and favourable situations; but in cold unfavourable places, should be sheltered in a frame during winter. *C. orientalis* is a hardy annual, with yellow flowers about August.

CEPHALOTUS (New Holland Pitcher-plant).—The species is *C. follicularis*, a dwarf herb, among whose leaves, forming a tuft close to the ground, grow the curiously-formed bodies called pitchers, which constitute the chief interest of this plant, the flowers being small, and growing in a grass-like spike. This plant requires a temperature warmer than a greenhouse, and does very well in a stove, if not kept there in too hot and close a situation. It should be potted in turfy peat and chopped sphagnum, and should be kept constantly wet, as it grows naturally in boggy situations. If kept in any structure that is much ventilated, it should be covered with a bell-glass, which may be removed at night when the house is closed.

DIONÆA (Venus Fly-trap).—This is a vegetable curiosity. Its leaves have a moveable and excitable appendage, which closes up like a gin-trap when certain hairs on its surface are touched, and imprisons whatever may have caused it to collapse; thus various small insects are often caught, and hence its trivial name. It requires much the same treatment as *Cephalotus*. The species is *D. Muscipula*, a dwarf herb.

CERASTIUM.—Hardy perennials of the simplest culture,

propagating extensively by division, and spreading widely in dense masses over the ground. Such of the species as produce flowers large enough to be showy are desirable subjects for rockwork; of these are, *C. alpinum*, *C. latifolium*, *C. tomentosum*, and *C. grandiflorum*, all dwarf, having white flowers, and blooming for a considerable period during summer.

CHARLWOODIA.—Shrubs, with a slender yucca-like habit. *C. australis* is a greenhouse species, and may be raised from the side shoots thrown out when the plant flowers or the centre is artificially destroyed. These shoots are to be taken off when a little hardened, and planted singly in moderate-sized pots of sandy soil, like cuttings, and kept close in a frame until rooted. Established plants are to be grown in the greenhouse, in a mixture of peat and loam, shifted into larger pots from size to size as they advance.

CHIRONIA.—A genus of greenhouse soft-wooded shrubs, of a very ornamental character. They propagate without difficulty by cuttings planted in sand, and put in a warm frame till rooted; and when established should be grown in roughish sandy soil, composed of three-fourths peat to one-fourth loam, with a considerable admixture of pure sand. The pots must be well drained, and should not be over large. Considerable care is requisite not to over-water, especially in winter. The species have for the most part rose-coloured blossoms, and flower at different periods during summer, sometimes for a long time in succession; the most ornamental are, *C. floribunda*, *C. glutinosa*, *C. decussata*, and *C. frutescens*, to all of which the above description applies.

CLEMATIS (Virgin's-bower).—A large genus, almost all of which are climbers. The hardy kinds are of the simplest possible culture; they are raised from seeds or layers, and grow freely in any moderately good ground. They are valuable for covering walls, arbours, trellis-work, &c. Of these hardy kinds the best are, *C. Flammula*, sweet-scented, white, July to October; *C. florida var. Sieboldii*, white and purple, May to September; *C. cœrulea*, bluish-lilac, June and July; *C. calycina*, evergreen, cream-colour, April to June; *C. Hendersonii*, purple, June to September; and *C. Viticella*, blue, July to September. *C. Sieboldii* is worthy a place in the greenhouse, either grown on a large pot trellis, or trained on a rafter. *C. graveolens* is a slender kind, with creamy-yellow flowers, suitable for the greenhouse; it blooms in July and

August. The genus contains some hardy perennials, which are managed like other herbaceous perennials; of these the best is *C. tubulosa*, which bears a profusion of blue flowers in summer and autumn.

CLEOME.—This genus contains several annual species, curious, rather pretty, and very distinct when in flower. They should be raised from seeds in spring, in a frame, with slight warmth, potted off singly, and hardened subsequently, so as to be planted out in May, when they should be strong vigorous plants. They like a dry, warm situation. *C. heptaphylla*, white, and *C. speciosissima*, purple, flowering through the latter part of the summer, are distinct and showy. One or two species are stove, soft-wooded shrubs; and there are some stove annual species.

COBURGHIA.—A fine genus of amaryllidaceous bulbous plants, agreeing in treatment with *Phycella*, and the allied genera. The Coburghias are greenhouse bulbs. *C. incarnata* has scarlet drooping tubular flowers, in August and September; *C. miniata*, vermilion, in April and May; *C. versicolor*, crimson, green, and white, June and July.

CORTUSA (Bear's-ear Sanicle).—*C. Matthioli* is a pretty dwarf herbaceous perennial, producing lilac flowers, from April to July. It may be grown on rockwork or in pots among alpine plants.

CORYDALIS.—Pretty, hardy perennials, related to *Dielytra*, and requiring similar treatment. *C. lutea*, yellow, summer; *C. sibirica*, yellow, summer; and *C. nobilis*, straw-colour, May, are desirable species to contrast with the rose-coloured Dielytras.

SCHIZANTHUS.—Hardy annuals, and greenhouse biennials. The former class includes: *S. pinnatus*, pale lilac and purple; *S. p. humilis*, dwarfer, and deeper coloured; *S. p. venustus*, lilac and deep rose; *S. p. Priestii*, white. The plant is branching, elegant, and well-covered with bloom; the flowers of an odd shape, with wings and lips of different colour. These not only run into one another, but every year give new varieties, that would easily be kept distinct, and deservedly so, were they perennials instead of annuals; but they are not constant from seed,—no matter, they are a very pretty tribe of plants, and for pot culture as well as the borders are worthy of all gardens. Sown in the open borders, they bloom the more dwarf in proportion as the soil is poor; but the best

way to raise them is on a hot-bed in March ; prick them out in pots, a few in a pot, in April, and in May re-pot a number singly in forty-eight-sized pots, in which to bloom. Turn the rest out in the borders, with the ball of earth whole, to form patches there. In June, the potted ones will bear shifting to a size twenty-four, and in these they will flower beautifully ; meanwhile those in the borders will make a great show, and from the variety of colours, and the combinations of colour, they generally present, the patches will look far better than they would if the flowers were all of a colour. Soil for potting : two-thirds loam from rotted turves, one-third turfy peat. The greenhouse biennial section—which is only suitable for pot-culture, and differs only in requiring to be sown in July, and kept through the winter in small pots, on a dry, airy, greenhouse shelf—includes *S. retusus, Hookeri,* and *Grahami,* which have a general resemblance, and bear flowers, in which some shade of rose or purple is contrasted with yellow.

CYCAS.—A genus of palm-like plants, requiring the stove temperature. They are nearly allied to *Zamia,* and require similar treatment. The foliage of the species of Cycas is very elegantly feathered ; and the plants are very desirable in a stove collection. *C. circinalis* and *C. revoluta* are the species most generally met with ; they flower but seldom, the beauty of the plants resting in their evergreen foliage.

CYDONIA (Quince).—This is a genus of trees and shrubs. We notice it to include *C. japonica,* once known as *Pyrus japonica,* which is one of the most brilliant of deciduous flowering shrubs, blooming in the depth of winter, and throughout the greater part of the year. The large scarlet flowers grow in clusters on the branches, and are very conspicuous in winter, when the leaves are fallen ; they have been likened to "fairy fires,"

> "That gleam and glow amid the wintry scene,
> Lighting their ruddy beacons at the sun,
> To melt away the snow."

It is a free-growing plant in common garden soil, attains five or six feet in height, or more if trained against a wall, and is increased either by cuttings, layers, or suckers. It forms a beautiful lawn or shrubbery bush ; is equally desirable trained over the surface of a garden wall or building ; forms a very ornamental hedge ; or if trained up or "worked" on a clean stem, makes a very conspicuous small standard tree. The

plant is perfectly hardy, which, combined with its easy culture, recommends it to general favour. There are varieties with cream-coloured, and semi-double red flowers, but they are far inferior to the common kind.

CYPELLA.—This genus of bulbous plants contains two species, both of which may be grown in a frame with protection against frost in winter. They are small, but very beautiful, *C. Herberti* having orange-coloured flowers during the summer, and *C. plumbea* bluish flowers at the same season. They should be potted in a light compost of loam, peat, and leaf-mould, in equal proportions. *C. plumbea* is now, by some, called *Phalocallis plumbea.*

CZACKIA (Bruno's-lily).—*C. liliastrum* is a pretty herbaceous perennial, with white flowers, like an asphodel, blooming in May and June, and again in autumn. It is increased by division, grows in common garden soil, and is quite hardy.

STRELITZIA.—This is a genus of extraordinary-looking stove plants. Two kinds are familiar to us in all stove collections, as having a flag-like leaf, and a flower almost like the head of some gay bird, formed of orange and blue, and lasting a long time in flower, each individual blossom keeping in perfection a considerable time, and being succeeded by others as it decays. Loam, peat, and dung form the best compost for it, and it may be grown from one sized pot to another until a good specimen would fill the largest sized pot, and this would comprise so many hearts, as it were, that some one or other would be always in flower. There is, however, in all plants, a period of rest, and then the Strelitzia should be put in the coolest part of the stove, and have but little water. Whenever the largest sized pot is filled so close with roots as to starve the plant, it must be turned out, and some of the side offsets removed, the mould shaken out enough to do this conveniently, and the roots a little trimmed. There should be some pains taken to keep two or three of the strongest together to go into the same pot again. In short, no more ought to be taken away than enough to give tolerable room. The offsets so parted must undergo the same treatment as the original, being changed from pot to pot till they arrive at the same perfection. We have seen them changed from the largest pots to tubs, but plants get unwieldy then, and as they never grow tall, it is the less necessary to do so, and much better to part them. The kinds most desirable for general collections,

are—*S. reginæ* and *S. ovata*, the latter the smaller of the two, both having the flowers orange and blue.

DABŒCIA (St.Dabeoc's-heath).—A small, hardy, flowering shrub, requiring to be cultivated in peat soil, and associating well with the Andromedas, the smaller species of Rhododendron, Epigæa, and the hardy heaths. *D. polifolia* has purple blossoms, *D. p. alba* has them white, both blooming from June to September. They are propagated by layering, and, except in requiring a moist peaty soil, offer nothing peculiar in their general cultivation. Along with some of the dwarf heaths, they are suitable for planting as edgings to beds of American shrubs.

DICTAMNUS (Fraxinella).—Tallish growing, and showy, hardy perennials, with leaves something like those of an ash-tree, hence the name *fraxinella*, or little *fraxinus*, the latter being the name of the ash. They grow in common garden soil, preferring that of a loamy nature. The roots may be divided for the purpose of propagation ; or seeds, which are generally matured, may be sown for that purpose ; they should be sown about May, in open beds. *D. Fraxinella* is red, *D. albus*, white ; they bloom from May to July.

CLERODENDRON.—A large family of stove plants, that have been highly popular for some years, and, except a few of the species, more so than they deserve. The cuttings, which should be the unblooming side shoots, root freely in the soil in which they grow, which should be loam, peat, and dung, equal parts ; they root best with a little bottom heat. They only require to be grown from small to larger pots, as they advance, until the plant will fill a pot of twelve inches, and bloom every year, the plants being cut close down annually. The best are, *C. fallax superbum*, *C. squamatum*, and *C. paniculatum*, all having large, vine-like leaves, which form a rich and noble-looking bush, the shoots being surmounted with a large, pyramidal panicle of brilliant scarlet, the individual flowers of which are not very unlike a fine scarlet geranium ; these come into flower in July and August, and last for a long time in beauty, if not kept too hot and close. *C. fragrans flore-pleno* is another very desirable kind, on account of the rich fragrance of its blush-coloured heads of blossoms, which grow in bunches, something like an hydrangea ; this continues blooming at intervals through the autumn. *C. splendens* is a splendid scarlet-flowered evergreen stove climber,

blooming at all seasons, according to its growth; and is admirably contrasted by *C. scandens*, white, with red eye, having the same habit. These climbing species must not be cut down annually, like the others. They all require plenty of nourishment.

DISANDRA.—A trailing greenhouse plant, often seen growing in windows, its long slender stems hanging down from the pot, clothed all down with roundish leaves, and bearing small yellow flowers, not at all striking in appearance, about May and June. The plant is cultivated, probably, more on account of its freedom of growth, and its verdure, than for the sake of its flowers. It grows well in any light loamy compost, and is increased by cuttings.

ERPETION.—A small genus of dwarf, tufted-growing, herbaceous plants, closely allied to the violets. There are two species, *E. reniforme* and *E. hederaceum*, in both of which the blossoms are white and lilac, and are produced between May and September. They are not quite hardy, but may be preserved, with the choicer alpine plants, in a frame from which frost is just excluded. Their habit is a little creeping, like that of some of the violets, spreading in dense tufts, so as to cover the surface of the soil in which they are grown. In consequence of this creeping, rooting habit, they are very readily multiplied by division. The proper soil for them is peat earth, made rather sandy, the pots being well drained.

EUCALYPTUS (Gum-tree).—A large genus of greenhouse evergreen shrubs, or rather trees, the majority of which are far too large and coarse in their habit of growth for select collections. They furnish much of the timber of Australia. *E. macrocarpa* is, however, a very handsome evergreen shrub, of moderate dimensions, which produces its tassel-like bunches of red thready blossoms, in the summer season. They grow readily in a compost of loam three parts, and peat one part, with the ordinary treatment of the coarser greenhouse shrubs.

EUTAXIA.—A small genus of pea-flowered evergreen greenhouse shrubs, with neat opposite leaves, arranged in four rows; the flowers, which are very thickly produced from the axils of the leaves, are of a deep yellow, tinged with reddish brown, and they are produced from March to June. The species are free-growing plants of the hard-wooded section, and require treatment similar to *Dillwynia*, *Chorozema*, &c. *E. myrtifolia* is the commoner kind.

FICUS (Fig-tree).—A large family of evergreen shrubs, mostly requiring a stove temperature. There are, however, two or three species which grow well in a greenhouse temperature, and are very desirable evergreens, of the easiest culture, rooting from cuttings planted in any sandy soil, and placed in a frame; and growing freely in a compost such as is used for the majority of greenhouse plants. The most interesting for this purpose are *F. elastica*, which has very large and thick elliptical leaves, and *F. stipulacea*, a small, ivy-habited, creeping, rooting-stemmed species, with leaves almost heart-shaped. These are both good plants for window-culture, especially the former, which has a noble aspect. It is one of the plants whose milky juice forms India-rubber; and is hence called the India rubber-tree. There are no conspicuous flowers.

FRANCISCEA.—A very ornamental genus of stove shrubs, requiring to be grown in a rough, turfy compost, of three-parts peat to one part loam. They are raised from cuttings planted in sand, under bell-glasses, in a moderate heat. The cuttings, when rooted, must be potted into small pots, in compost like that indicated above, but rather more sandy; they require to be kept in a moist stove temperature while growing, and should be tested by placing them in a drier and somewhat cooler temperature after each growth is completed; the pots being changed for larger ones as often as the roots become thick around the ball of earth. The larger plants flower freely, and should be slightly pruned in annually, before they are excited to renew their growth; this keeps them within bounds, and of neat form. There are several very showy kinds: *F. uniflora* and *F. latifolia*, both open purple, and change paler, becoming almost white; the former blooms all the year, the latter from April to November, and both are highly odoriferous. *F. villosa* is similar, but of a different blooming habit, and the change of colour is less striking; *F. hydrangæformis* is a much larger-leaved plant, with a close head of purple flowers, terminating the upright shoots, like the bloom of an hydrangea; these two flower from April to November. It is one of the most ornamental genera of stove shrubs.

FRANCOA.—Pretty frame plants, of herbaceous habit, with showy spikes of flowers. They are best raised from seeds sown in July, in light soil, the pots being kept in a cool frame. The young plants are to be potted singly, and kept in rather

small pots through the winter, unless they can be put on a greenhouse shelf, where they would continue growing all the winter. In spring, they must be shifted into larger pots, as the previous ones become filled with roots; and about July and August they come into flower, and are very pretty, either bloomed in pots, or planted out in the flower borders, about May, when there is no further danger from frost. *F. sonchifolia* has purple flowers, *F. appendiculata*, pink, and *F. ramosa*, white. They do not require any amount of heat, and the protection of a frame is sufficient for them, if they are not kept too damp at the root.

GAGEA.—A genus of hardy bulbs, closely related to *Ornithogalum*, and requiring the same treatment; they all produce yellow, or yellowish blossoms, and all bloom between March and May. *G. lutea*, *G. glauca*, and *G. minima*, are among the earlier flowering of the species.

GNIDIA.—One of the simpler forms of hard-wooded greenhouse shrubs, of slender branching habit, and neat foliage, but not producing very conspicuous flowers. They are raised from cuttings, treated like those of the heath family; and require very similar general management. Turfy peat soil, intermixed with about a fourth part of light loam, and made rather sandy, is the most suitable compost for them. *G. pinifolia*, yellowish white, May and June, and *G. simplex*, yellow, May to November, are distinct sorts, and both produce their blossoms in heads at the tops of the shoots.

GRIFFINIA.—Stove bulbs of the amaryllidaceous family. They are very distinct dwarf plants, with blue flowers; in *G. hyacinthina* having a white centre, and blooming from June to September. This is the most interesting of the species. Its general treatment should be the same as that given to the stove species of *Amaryllis*.

GYPSOPHILA.—Hardy perennials with one or two exceptions. Some of the species are pretty, but they are not showy; they produce a number of small flowers, usually white, on thin, much-branched stems. *G. latifolia*, *G. acutifolia*, and *G. repens*, are pretty kinds with white flowers; *G. collina*, *G. tenuifolia*, and *G. graminea* have reddish flowers, they bloom from June to August. All the smaller species of the genus, which is rather extensive, are very well adapted for rockwork. They like a dryish soil, especially if intermixed with calcareous matter, or old lime, or brick rubbish. They must be propa-

gated by seeds or cuttings; their tap-rooted habit not generally admitting of safe increase by division.

HELLEBORUS (Hellebore).—Hardy perennials, of easy culture, growing in good garden soil, and increasing by dividing the roots in the dormant season. It is rather a desirable family, containing *H. niger*, the Christmas rose, a dwarf, tufted species, which flowers all through the winter, having large white blossoms; *H. fœtidus*, which has a branching head of greenish flowers, edged with livid purple, in February and March; and a dozen other species,—of which *H. purpurascens*, purplish, March and April; *H. olympicus*, greenish, February and March, and *H. atrorubens*, purple, March and April, are the most desirable.

HEMEROCALLIS (Day-lily).—A genus of hardy herbs, rather coarse-looking, and possessing the property of producing blooms that last but one day—hence the trivial name. They are of the simplest culture, growing readily in the ordinary soil of gardens, and propagated by separating the plants. *H. flava* has yellow, and *H. fulva* copper-coloured flowers, which are pretty freely produced from June to August.

HESPERANTHA (Evening-flower).—One of the genera of greenhouse or frame bulbs allied to *Ixia*, and requiring the same mode of management. The flowers are white, in some species tinged with brown. *H. pilosa* and *H. angusta* flower in April and May; *H. graminifolia*, in August and September.

HESPERIS (Rocket).—Some of the varieties of the common Rocket (*H. matronalis*) are very great favourites in flower-gardens. The double white and the double purple are the best of these, and they bloom between May and August. They are rather ticklish subjects to manage, especially in old gardens or in confined situations; they love fresh soil and an open situation. A light loam is the best for them, but if an artificial compost has to be made up for them, as it should if they are required in perfection, a third-part of sandy peat mixed with a portion of heavier loam will grow them very well. Next to soil, the great secret of success is, not to let them stand too long in a place; under such circumstances they are sure to dwindle. They ought to be taken up and divided every second year, soon after they have done flowering,—that is, early in autumn,—and replanted in fresh soil. To have

a display of healthy plants every year, they should be divided into two sets; those plants respectively which have bloomed in their second year, if taken up in each successive autumn and divided, will furnish a constant supply of young plants, which should not be allowed to flower in the following summer, and will then bloom vigorously in the second year from their transplantation. One reason why this constant transplantation is necessary is, that the plant, in its original state, is naturally a biennial, perishing after it has produced flowers. The other species, most of which are also biennials, are unimportant compared with the varieties above alluded to.

HIBBERTIA.—A genus of greenhouse shrubby plants, two or three of which are also creepers. Of this habit are, *H. volubilis* and *H. grossulariæfolia*, which bear yellow buttercup-like flowers, from March to September. Of the dwarfer shrubby species, *H. perfoliata*, blooming in May; *H. corifolia*, blooming from June to October; and *H. Cunninghami*, blooming in June, are rather showy or pretty. They are raised from cuttings planted under a bell-glass in sand, and grow in a mixture of equal parts sandy loam and peat. They are all evergreen shrubs, and all have yellow blossoms.

HOUSTONIA.—Pretty little tufted perennial herbs, associating in size and general management with the alpines. A sandy mixture of three parts peat to one of loam suits them, and they multiply by the process of division. *H. cœrulea* is a very pretty plant, not more than three inches high, with comparatively large and numerous bluish-lilac flowers, developed during the summer months between May and August; *H. serpyllifolia*, has the flowers white.

HUNNEMANIA.—*H. fumariæfolia* is a hardy biennial, with all the habit and appearance of the *Eschscholtzias*, and requiring similar culture. Its flowers are yellow, poppy-like, and produced from July to October.

JASIONE (Sheep's-scabious).—Pretty dwarf plants, bearing blue flowers in heads. *J. montana* is an annual, found wild in many parts of Britain, and has a very pretty appearance during June and July, its flowering season, from the exceedingly numerous heads of pale-blue blossoms which terminate each of its branchy shoots. *J. perennis* is larger, more showy, and, as its name implies, a perennial plant. The former may be sown in the borders in March, and requires no other care than thinning if the plants come up too thick; the

other is increased by seeds, or by division, and requires but little care after being planted in the flower-border.

KERRIA.—*K. japonica* is a well-known shrub, with green stems and yellow flowers, often met with trained against walls and fences in old gardens. It blooms from May to September. It is a free-growing plant, adapted for such situations, and is readily increased by suckers, growing best in light soils. The double-flowered variety is the best.

LEONOTIS (Lion's-ear).—*L. Leonurus* is one of the free-growing soft-wooded greenhouse shrubs, which when grown vigorously become very ornamental, from the profusion of orange-coloured labiate flowers produced in whorls at the axils of the leaves; these flowers are produced in the autumn months. Cuttings may be planted early in spring, and root readily in bottom heat. When rooted, they should be potted into a rich, light, loamy soil, hardened off as soon as possible to the greenhouse temperature; continually stopped to induce bushiness of growth; and shifted as fast as the pots fill with roots, to give strength to the plants. By the beginning of May they may be transferred to cold frames; and during the summer they are quite as well grown exposed in the open air, so that care be taken that they do not become parched, which destroys their foliage. After the beginning of August, the shoots should not be topped, but allowed to grow away for blooming; or if stronger spikes of bloom are required, the stopping may be discontinued earlier. The object of stopping is, however, to produce a very bushy plant, that may yield a large number of flowering shoots. There is no difficulty in cultivating the plant, which, when established, should be grown in rich loam. With this, and other similar free-growing plants, it is better to raise young ones annually, than to attempt to prune back or otherwise renovate the old specimens. They are chiefly to be preserved to furnish cuttings in the spring.

LEPTOSPERMUM (South-sea Myrtle).—One of the families of greenhouse myrtaceous shrubs, which may be grown exactly in the same manner as *Metrosideros*. They are neat, but possess no remarkable attractions; nevertheless, one or two of them are worth introducing in a mixed collection. *L. grandiflorum* and *L. lanigerum*, which have white flowers in June and July, may be quoted as favourable examples of the genus.

LIBERTIA.—Beautiful Iris-like plants, of which one species, *L. grandiflora*, with white flowers from April to September, is hardy; and three other species, also bearing white flowers through the summer, require the protection of a frame or cool greenhouse; these are, *L. paniculata*, *L. formosa*, and *L. pulchella*. They are perennial herbaceous plants, and, excepting the peculiarities of temperature already noticed, may be treated exactly like the herbaceous Irises.

LODDIGESIA.—*L. oxalidifolia* is a greenhouse shrub, with neat oxalis-like foliage, but rather insignificant blush-coloured pea-like flowers. It propagates readily from cuttings, and may be potted, when rooted, in a compost of three-fourths peat-earth and one-fourth sandy loam.

LYSINEMA.—A genus of rigid evergreen greenhouse shrubs, scarcely different from *Epacris*, and requiring exactly similar management. *L. pungens*, white, and *L. roseum*, rose-colour, both blooming in spring and early summer, are distinct and pretty.

MADARIA.—Hardy annuals, showy, but rather commonplace in their appearance. *M. elegans* bears a profusion of good-sized golden-coloured flowers, which have a ring of brownish blotches on the petals, around the central disk. It may be sown in the open border in March and April.

MELASTOMA.—A fine group of shrubby plants, mostly vigorous in habit, generally regarded as stove plants, but requiring the extra heat of a hot-house only for a few months in the spring. They may therefore be grown in a frame, and transferred to the greenhouse, after its usual occupants are placed elsewhere, in the same way as tender annuals are generally accommodated. They strike freely from cuttings, and only require to be shifted on into larger pots as they get full of roots. Cuttings taken very early in spring, might be bloomed during summer. In winter they require a dryish atmosphere, something warmer than a greenhouse. *M. malabathricum* is the best species for this kind of treatment; it bears large rose-coloured flowers, which would be expanded towards the end of summer. The soil for them should be equal parts of good loam and peat earth.

PLEROMA.—A genus closely allied to *Melastoma*. *P. elegans* is a beautiful purple-flowered species, which requires a temperature intermediate between a stove and greenhouse, but may be grown very well in a greenhouse, if carefully sheltered

the colder parts of the year; and, under such treatment, ırs much richer-coloured flowers than when grown in a higher ıperature. The blooms are very large, of a beautiful colour.

CHÆTOGASTRA.—A melastomaceous genus. *C. strigosa* ı slender twiggy plant, with something the appearance of ɜ old *Fuchsia microphylla*, only not, like that, pyramidal in habit. It bears pretty rose-coloured flowers during sum-ɜr, and may be successfully grown in a warm greenhouse ıder the management recommended for *Melastoma*, only, ing quite a small plant, it will not require shifting into pots so large a size. The soil for this should be made rather ›re sandy.

MIRBELIA.—A pretty family of greenhouse evergreen a-flowered shrubs, requiring the treatment of *Chorozema*. . *speciosa*, and *M. dilatata*, both of which have purple ›wers, and come into blossom between May and August, are nong the more showy of the species, of which there are some x or eight in cultivation.

MONARDA.—A small genus of hardy perennials, with horls of labiate flowers, the plants having an odour compared · bergamot. They are increased by division of the root, and ›urish in the ordinary soil of gardens. *M. didyma* has arlet flowers; a variety of it, white flowers; *M. fistulosa*, purple: they bloom in the summer months.

LIMNANTHES.—Annuals, of trailing habit, with neat but not showy flowers. Though not strictly hardy, they may be sown in the open borders in March, and again in April for succession. They are not very particular as to soil, but prefer a moist situation. *L. Douglasii* has white flowers with a yellow centre; *L. rosea* has light rosy blossoms; like similar annuals, they flower in about six weeks from the time of sowing.

HUGELIA.—Annuals, allied to *Gilia*, and flourishing under the same treatment. *H. densiflora* and *H. elongata* have blue flowers, in June and July.

MUSCARI (Grape Hyacinth).—Hardy dwarf bulbs, which multiply by means of offsets, and are in some cases troublesome to extirpate, when once introduced to a spot of ground, owing to the numerous minute offsets they produce. They are by no means particular as to soil. The bulbs should remain in the soil from year to year, and not be taken up and dried; and every third or fourth, they may be taken up and replanted again at once; this may be done in September, or early in

October, before they begin to grow. They bloom in March and April, *M. botryoides* bearing bright blue, or, in a variety, white, and *M. racemosum*, dark blue flowers, in a grape-like cluster; *M. comosum* and *M. c. monstrosum*, purple flowers, in a kind of feathery head.

NERINE.—Amaryllidaceous bulbs, all of which may be cultivated in a greenhouse. They require the same treatment as *Amaryllis*. Some of the more beautiful of the species are *N. corusca*, scarlet, July to September; *N. venusta*, rose, June to August; *N. pulchella*, red, July to September; *N. undulata*, pink, September and October; and *N. sarniensis*, red, September and October. The latter is the Guernsey lily, of which large quantities of flowering bulbs are annually imported.

OXYURA.—A showy annual, like the annual chrysanthemums, producing yellow flowers edged with white in June and July. It should be sown in the open border, in March and April, and thinned out; and requires no other culture.

PARDANTHUS.—Hardy perennials, requiring a somewhat sheltered situation, and dry or well-drained soil, and in other respects assimilating in cultivation with *Iris*, to which it is closely allied. *P. chinensis* has orange-coloured flowers, spotted with deeper orange, and blooms in June and July; *P. nepalensis* is another orange-flowered species.

DIETES.—*D. iridioides* is a handsome Iris-like plant, requiring the protection of a frame, and growing freely in light loamy soil; it increases readily by division. The flowers are white, with a beautiful orange blotch on each division of the corolla; it blooms during summer.

PENTHORUM.—A hardy succulent-leaved perennial, producing corymbs of orange-yellow flowers in July and August. The species is *P. sedoides*. It grows in common soil, and increases by division.

PHYTEUMA.—Handsome, hardy perennials, of easy culture in a dryish situation, and in good garden soil. *P. comosum* is a fine dark blue species, blooming in June and July. The common *P. orbiculare* is also a very pretty plant; the flowers are blue, and appear from June to August. There are about a score of species. They are multiplied either by seeds or by division.

PODOLOBIUM.—Greenhouse evergreen shrubs, with holly-like leaves and pea-like flowers. They may be managed as *Dillwynia*. *P. staurophyllum* and *P. trilobatum* are two very

showy orange-flowered species, blooming, as they all do, in the spring months.

PULTENÆA.—Handsome greenhouse evergreens, with pea-like flowers. They may be treated as *Dillwynia*. *P. subumbellata*, *P. flexilis*, *P. daphnoides*, and *P. stipularis*, all have yellow blossoms, and bloom in the spring.

SALPIGLOSSIS.—A genus of biennials, requiring the protection of a frame in winter, and, except in very sheltered situations, where they may be planted out in summer, suited rather for pot-culture in-doors than for the open air. They may be managed very much in the same way as the biennial species of *Schizanthus*. There are several varieties, and a packet of seeds yields many variations: but the principal recognised kinds are *S. atropurpurea*, purple; *S. straminea*, straw-coloured; *S. picta*, variegated, on a whitish ground colour; *S. Barclayana*, brown and yellow. All these are more or less veined with deeper colour, and are varieties of one species. They come into flower from June to August, and, when well cultivated, are showy plants.

QUAMOCLIT.—A genus of pretty half-hardy convolvulaceous climbers, which should be raised in a mild hot-bed about March, kept in frames until May, and so hardened off before final planting out as to bear the exposure without injury. They make pretty climbers for the flower-garden; for, though their flowers are small, they are brilliantly coloured. *Q. vulgaris* has the leaves much cut, and, together with *Q. coccinea*, which is sold in the seed-shops as the scarlet convolvulus, has the flowers bright scarlet or crimson; they are in bloom from July to September.

TRITONIA.—A genus of iridaceous plants, closely allied to the *Ixias*, and requiring very similar management. *T. aurea*, a recently introduced plant, has splendid orange-coloured flowers, and, treated like the better kinds of Gladiolus, makes a splendid bed in the flower-garden. *T. crocata* is a showy, free-flowering, dwarf species, very well adapted for pot-culture, as are the majority of the species; it has deep-orange or vermilion-coloured flowers: *T. rosea* is white and rose; *T. fucata*, yellow and scarlet. They bloom in the summer months.

DIDISCUS.—Curious and rather pretty hardy annuals of the umbelliferous order. There are two, one with white, the other with blue flowers, but the latter only is now met with in cultivation. It is called *D. cæruleus*, and blooms from July to September. It should have the usual treatment of hardy

or half-hardy annuals; that is, sown in March in a sheltered spot for transplantation, to supply the earliest bloom; and in the open border later, to bloom where sown.

SPARAXIS.—A family of showy iridaceous bulbs, requiring a frame or greenhouse, that is to say, protection from frost and damp, as with Ixia, to which genus this is closely allied. *S. tricolor*, *S. versicolor*, and *S. grandiflora*, are fine species, between which seedling varieties of great beauty have been raised. They bloom in April and May.

VALLISNERIA.—A curiosity, which is worth the attention of all garden amateurs. It is an aquatic, and is one of the many subjects of deep interest which nature offers to the contemplative mind, without any of the attractions conventionally styled beauty. It may be grown in the window of a living-room, planted in a deep clear glass cylinder, the root being fixed among some soil at the bottom, and the glass kept filled with clear water, which should be changed or overflowed about once a-week. The plant grows entirely under water, except its tiny flowers, which, attached to the roots by long, thread-like, spirally-turned stalks, just reach the surface to develop themselves. The species is *V. spiralis;* it may be grown in a hot-house, or greenhouse, or in the open cistern, or in a window, with equal facility.

UVULARIA.—Neat, hardy, herbaceous perennials, dwarf, with lily-like leaves, and yellow flowers. They grow with ordinary attention in the common soil of gardens, preferring a cool situation, without stagnant moisture, and are propagated by division. *U. perfoliata* and *U. grandiflora*, both flowering about May and June, are fair representatives of the half-dozen kinds composing the genus.

XERANTHEMUM.—A genus of hardy annuals of the composite kind, of which two varieties are among the common annuals now almost expelled from gardens by the gayer annuals from California and elsewhere. They must not be confounded with the showy yellow and white everlasting flowers (as they are called) which have been, and indeed now are sometimes named Xeranthemums. The species mostly cultivated is *X. annuum*, of which *roseum* has purplish-rose flowers, and *album* has white blossoms; their general blooming season is July and August. They are among the most easily cultivated annuals, requiring only to be sown about the end of March, in the open border, and thinned out for flowering. A succession may be sown a month later than the first sowing, if it is required.

JANUARY.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

By the commencement of the new year, all our alterations, removals, turf-laying, gravel-making, box-edgings and other groundwork should be drawing to a close. We do not deny that they can be carried on far later, but an English winter can be little depended on for fine weather; and both wet and frost in extreme will frustrate our best endeavours. On this account we ought always to be ready with our proper amount of labour in October, and from that time, until all is done, lose not a single fine day. Again, as planting is always a check upon trees, with all the care we can use, the trees and shrubs we require should never be taken up till we are ready to plant them; for, in however few cases it may be fatal, it is always more or less injurious to keep the plants out of the ground. No digging or trenching can go on with advantage in wet weather: it may go on well in frosty weather; though when the earth is frozen very hard there is more labour attached to the job, and it goes on slower. The work, however, is quite as well done, and often, if the men do their duty with the pickaxe and break the lumps a little, it is of great service to bury frozen earth and bring up the lower spit to freeze. However, for progress, dry moderate weather is the most advantageous. Being ready for the work in October, you may, nevertheless, be stopped altogether by excessive wet for a considerable time, and the intervals of fine weather may not be long enough to permit the soil to dry; all this should be well considered, and no work should be wilfully put off to a later period. January may be mild open weather, or cold dry weather; in which case, whatever is left undone should be done without delay. All newly-planted trees should be examined; their stakes may have been disturbed, or their fastenings come loose; and unless these things are set to rights at once, they would suffer greatly.

Collecting Manures.—This is a general sort of duty in the winter months. Peat-earth, road-drift, dead leaves and vegetable matter, sand, marl, loam, turves for rotting in heaps; horse, cow, sheep's, poultry, and pigs' dung, and all other stuffs useful in composts, should be gathered together, but always in separate heaps, to lie until wanted. The turves to lay and rot ought not to be cut more than two inches thick; and those who cannot obtain them any other or cheaper way, should buy them as if for laying down on a plot,

and pile them in a heap; for this is, after all, worth every penny that is paid, for the ground-work or staple matter in all kinds of composts. The great drawback is the quantity of grubs usually found in the roots of grass; but these must be got rid of by hand-picking. Set a boy to remove the turves from one another and pick out all the vermin he sees between them, whether slug, wire-worm, or grub, and pile them in a fresh place; the vermin usually get to the part where the turves meet, for the sake of the air. Picking them in this way clears away two-thirds the first picking; in another week or two, remove them back to the first place, and you will find another lot; and about the third or fourth picking will get rid of all but a few stragglers. At the end of a year the turves are to be disturbed by cutting thin slices all down with a very sharp spade, and mixing it, chopping the stuff and knocking it to pieces; when any wire-worm, grub, slug, or other vermin that happens to be left, is generally exposed and must be destroyed, if the spade has not already cut it in half. The peat, dungs, vegetables, &c. must each be kept in its distinct heap, to be ready when wanted. Leaves take two years to rot, and sometimes more; turves will be over three, although useable at the end of two. The refuse or spent dung of melon and cucumber beds laid one year together after it is done with for the frame, is always valuable; for with all flowers, dung of any sort should be well rotted.

Pruning and Nailing Climbing Plants, both those which are fresh planted, and others that have been established some time, may be done in all the winter months when the weather permits. Roses, Pyrus japonica, Wistaria sinensis, jasmine, honeysuckle and many other climbers, may be now planted for the first time, and be spurred in; but all the weakly branches may be cut away, and the strong ones nailed out at proper distances, whether horizontal or fan-fashion.

Pruning generally.—Lilacs, laburnums, and almonds, which have their set times for spring pruning, may nevertheless be touched this month, whenever the quantity requiring to be done shall cause you to have it some time about; for amateurs have not always the requisite strength of hands to do any thing rapidly; and where a man does every thing with his own hands, and trusts nobody, he can hardly begin too early, though it would be very easy to begin too late; that is, so late as to be useless. It must be recollected, that all flowering shrubs show their bloom-buds early, and must be touched sparingly with the knife; for the proper time to do the heavy work is directly the bloom is over; but all thin shoots, where they are too crowded and have no flowers on them, or rather, no bloom-buds, may be taken away clean. Where the branches have bloom-buds on them, we must naturally spare them until they have bloomed. Lilacs, Deutzia scabra, and some others which grow before they flower, nevertheless show by the boldness of their buds which shoots are likely to bloom; and all the spring pruning required is the removal of such small wood as is not likely to

produce flowers, and can be spared with advantage.

Preparing for early Flowers.—It may be generally assumed that nothing in a state of growth can stand the changeable out-of-door climate till the middle of May; therefore, all preparations for early flowers must be made by some kind of protection until that time. Thus, sweet-peas may be sown in pots, to be placed in a cold frame, and these with only the precaution of covering from frost, will be fit to turn out in a forward state as soon as the weather renders it safe; whereas, if they were sown in the open ground they would hardly have come up. Many so-called hardy annuals may be raised in the same way; so that you may be in full-bloom before June is out, while all those sown in the open borders will be coming into flower by the time the first are out of bloom or declining. Pots sown with all or any of the annuals that are usually sown in patches this month, may be hastened still more by putting into the greenhouse; for they may be almost flowered before they are turned out. Some may be sown out-of-doors under hand-glasses, to be covered every night close down. Sweet-peas may be sown in lengths, or patches, in thickly-cut turves, which are placed grass-downwards on shelves; and by cutting a slit or opening sloping, half-an-inch deep in the midst of the soil and roots, and stuffing the peas in at moderate distances, and pressing the earth upon them, they will advance as well as in pots, and with this advantage, that the turf is removed whole and inserted in the ground, affording the best possible nourishment to the plants.

Auriculas.—Cover up well with mats in frosty weather, but give all the air possible on fine days. If severe frost occurs by day, they should remain covered up. The roots must not get quite dry, but it is equally imperative that the soil be not kept constantly wet; the drier they are when it is necessary to cover up much, the better. When water is required, give it thoroughly, but let it be on a mild day, in the morning, with full ventilation all the day.

Anemones.—Treat the same in all respects as ranunculuses. The autumn planted want protection by haulm or litter; or for want of them, hoops and mats across the beds. The common single anemones are much more hardy than the double, and will stand a smartish frost without any protection whatever.

Beds of Flowers, especially when the plants are small, should be covered against frost, but if they have not been, the plants should be examined at every thaw, to see that the roots have not been disturbed, or if they have been, to press them down into their places.

Biennials and Perennials, generally raised from seed last season, and not planted into their blooming places, may be got in at once, if the weather is fair and mild; or if not, as early as this condition exists long enough to admit of their being got in. Newly planted subjects overtaken by severe frost, should be mulched.

Bulb-beds, in general, should be covered during severe weather. It is a good plan to cover the soil permanently with a layer of six

inches of leaf mould, which can be forked in as the spring advances.

Carnations, Picotees, Pinks, and Pansies, in frames and boxes.—Those in small pots must be shut up in bad weather, and wet weather in particular. We do not think a frost would do the mischief that wet would; for dampness is fatal to most things, but certainly when confined in small pots full of roots. They must have no water while they have any moisture in the soil. The pinks and pansies in their blooming pots, and especially the pansies, are kept growing as well as they can be during the winter, for the sake of their early bloom. Pansies intended to be flowered in the pots and not yet shifted to their blooming-pots, should be shifted directly or early in February, and well watered in to settle the earth about the balls at their roots; they should be covered close up for a day or two after this, but all alike should have air, and plenty of it, in mild dry weather.

Dutch Bulbs.—Holland, where bulbs are more successfully grown than in any other country, is said to be without any original soil; for light sandy alluvial soil is found more than forty feet in depth, and at the bottom of this may be found whole trees of immense size which, on exposure to the air some time, fall to pieces. It is in this light soil, every yard of which was once under water, that the bulbs flourish so exceedingly. As, however, the great secret of their success arises from making the best use of the means at hand, it may be worth while mentioning that the top six inches is always well manured with good well-rotted cow-dung, that the bulbs are planted in autumn, covered with straw all the winter, and when the straw is removed, watered all over with liquid manure formed of cow-dung and water. This settles the surface down, and the wind does not disturb it; whereas, if the surface were not run together, but left loose as it is under the straw, the wind would blow it away in clouds of dust. This may help us in our cultivation of hyacinths.

Half-hardy things under protection should have air in all fine mild weather, and not be at all moved beyond what is actually necessary. All but frost by way of temperature is safe, and even one or two degrees of this is not killing; but too much wet is bad, and therefore water should be seldom administered, and rain not allowed at all on them, unless the plants are taken from their frames and the frames covered up dry. Frames and pits should be well cleaned and swept all over inside with a stiff brush or a birch broom, to keep them clear of dirt and vermin; for nothing conduces more to the good health of plants than cleanliness and dryness of the ground on which they stand. Three or four good waterings will almost carry plants through a winter.

Ranunculuses.—Turn out the soil from the beds and lay it on each side the hole. Having thus removed, say a foot of earth, fork up the other well, but leave it in the bottom, and let the earth taken out be dug over and mixed once a-week, and each time well examined to detect any vermin that may be in it. The Ranunculuses planted in autumn must

be protected with litter. It is a curious fact, but not more curious than true, that in Holland, wherever they plant Ranunculuses they find celery, and that among anemones, narcissus, tulips, or other bulbs no such intruder appears. We have been assured by one of the most considerable growers in Haarlaem, that this fact has been noticed so often and so long as to give rise to a notion that Ranunculuses change into celery. With this we will have nothing to do; but we believe the fact, and promulgate it for the consideration of those inclined to speculate on the subject, and those who in England cultivate the Ranunculus to any extent will, perhaps, do us the favour to take notice if they meet with any thing of the kind.

Tulip-beds.—Let the best bed be covered, at any cost, against frost, so as to prevent even the soil from being frozen, much less the foliage: two or three stakes close to the edge, to keep it in, and litter put all over the bed six inches to a foot thick, will do this. The stakes round the edges will prevent the wind blowing off the litter, but if the bed is hooped, the hoops should be placed across, so that the centre would not be more than a foot above the earth in the middle. These hoops should be about a yard apart, and straight sticks from end to end along the centre and about half way from the centre to the edge. Mats may then be laid over without much difficulty, but it is best to put a net over the hoops permanently, so that there shall be no trouble in throwing over the mats in a hurry, which is frequently required in coming storms at a later period of the spring.

Violet beds, of the Neapolitan and Russian sorts, if sheltered with a layer of open protecting material, such as peas-haulm, over which a mat may be thrown in severe weather, will furnish an occasional picking of blossom, especially if situated in a warm corner, which should always be selected for them.

THE ROSE GARDEN.

Although January is not the month we should choose for rose pruning, there is, where one man does it all, a good deal to get through in a collection of any extent, and therefore, towards the end of the month, we should not hesitate to begin upon the most robust and hardy sorts, pruning all the strong shoots in to two or three eyes at the most, and all the weaker ones clean off. It is unsafe to trust to weak branches, for the branch that goes from them will often be found much stronger than themselves, and, in that case, they cannot sustain themselves in a proper position. The growing roses in the forcing-house want a considerable supply of water, syringing over the foliage, occasional fumigating with tobacco-smoke and an even temperature. The China sorts of roses, in pots, in the greenhouse, or in pots in the frames, with and without dung, require a good deal of watering when they once set off to grow, and if the pots are filled with roots it is as well to repot at once. Roses may be planted still out of doors, but the further we advance, the more care they require, and the less time can they, with any safety, be left out of the ground; nor does laying

them in by the heels at all compensate for it, although it may save them from perishing altogether. Briers may be still procured and planted in rows, and you may select the youngest, straightest, and best for grafting; young stocks are far more safe to unite, and far better when they have united, than older and more stubborn stuff. The seeds of roses, left out till now, may be sown, being first cleared of the leaves and wiped dry, in pans lightly covered and placed in the greenhouse, but never allowed to get dry; they may be looked for in a few weeks.

THE GREENHOUSE.

Most of the subjects in this house require no artificial heat beyond that which is sufficient to banish frost. If 32°, being the freezing point, be avoided, the plants will not be the worse for never feeling the warmth of 35°. Such being the case, the object is to keep down the temperature by opening the sashes whenever the weather is mild and there are no cutting winds. The great difficulty, however, is during a frost, for the necessity of firing is obvious, and the most constant attendance is required to see that the temperature is not raised too high; for it must be checked then by letting out the heat at the top of the house, and unless this is done cautiously, there will be mischief. The great disadvantage of increasing the temperature is, that the plants set off growing, or are drawn up weakly, or they are forced into bloom before you are ready for them, or they suffer changes and checks, which, perhaps throw off the bloom altogether, especially of camellias. Give, therefore, all the air you can; and if you can so manage, rather cover up against light frosts, than use fires. Of course you must be prepared, at all risks, to have the aid of fire-heat in very severe weather.

Azaleas are coming forward and showing what they will be; the Indian sorts are as forward as the hardy ones, although the latter have been warmer than they could have been out of doors.

Camellias are rapidly swelling their bloom-buds, and they will require a little attention as to watering; as they open, the most prominent places should be occupied by them, on account of their show, for every camellia flower is a gem at this time of year, and ought to be seen.

Climbing Plants in pots are now requiring adjustment to their various holders or supports, of which there are none so effective as shrubby branches of trees, formed into a handsome proportion, stuck in the pots like live instead of dead trees, and, with judicious management, the plants literally fill up the position well. There have been so many different fancies for the construction of trellises, that it would occupy a chapter, but we throw out the hint that, whatever form you adopt, it should be natural, and not a mere round or square to be filled up with whatever the plant is composed of, as is too much the case. There are fifty ways of doing the same thing, and the more natural, the more effective and enticing. Plants with large foliage require a large design, and minute flowers and leaves would be lost on any thing gigantic. In

the absence of any design, upright rods, all round the edge of the pot, will be the most simple and effective.

Geraniums. — Checking any shoots that are pushing out of their places, by pinching the ends out, and regulating the position of any branches that would be better a little constrained, is the principal business of the cultivator: keep them near the light; turn them frequently to prevent them from getting one-sided; give water more frequently than hitherto.

Hard-wooded Plants in general, such as chorozemas, hoveas, ericas, and such like, are, in many cases, showing their bloom-buds; correas, epacrises and some others are in fine bloom. See that they do not get too dry, an error in which many involve themselves in trying to avoid making them too wet. If any of them have filled their pots too full with roots, they will require much oftener watering, or else a change from one pot to the other. The former is the best, perhaps, till after the bloom, but a little liquid manure is the best thing to moisten the roots with when there is a lack of room.

Insects.—The pest of the greenhouse, during winter and spring, is the green fly or aphis; and in the mild weather, at this time of year, they are sure to make their appearance, on some of the soft-wooded races especially. They should be destroyed by fumigation at the outset, as soon as they are observed, for if left for only a week, they will have spread amazingly, and have done considerable damage. The following is a simple mode of fumigating:—Close the house at every point, choosing a day when the air is dull and heavy. Towards evening, apply the fumes of strong common tobacco. Get a six-inch flower-pot, with a wire handle like a basket, for convenience of lifting about; make in the sides close to the bottom two or three holes, as large as a half-crown, besides that in the bottom. Put a "handful" of clear red-hot cinders in the bottom of the pot; and having quickly carried it into the greenhouse, spread over them a layer of the tobacco damped; this is to be covered over with a good layer of damped moss. It will smoke away and dry rapidly, and would then burst out in flames, which would be liable to injure the foliage of the plants; but to prevent this, it should be watched, and when it is ready to burst through, more damp moss added. The pot should be set on three smaller pots, placed so that there may be draught up the hole in the bottom. These smaller pots, or stands as they may be called, should be placed in readiness, in two or three parts of the house, according to its size. Place the fumigating pot first at the further end of the house, and when the smoke begins to thicken there remove it to another part, and, at last, near the door, where it can be finally attended to with little bodily inconvenience. The whole house is to be filled quite full with the smoke, and if tobacco enough was not put in at first, more must be added. Next evening the fumigation should be repeated; and the morning after that, the plants should have a brisk syringing, and then a fire with ventilation, if need be, to dry up the damp. A less troublesome mode of fumi-

gating is with fumigating bellows, the smoke being puffed in through a small hole, the operator continuing outside. Where the smell of tobacco is objected to, the house should be fumigated with cascarilla bark, the following day.

Myrtles are often suffering for a long time for want of a change of pots, and occasionally they have been found so completely pot-bound, that the water could hardly go through the ball at all. This state requires that the ball shall be taken from the pot, and soaked for hours, until the wet has penetrated every part of the ball, and then it may be repotted in a larger pot with the ordinary turfy soil round it, and pretty well pressed: it will want no more water for a long time.

Orange and *Lemon* trees will be the better for a little top dressing of sheep's-dung, or still better with a moistening of the whole soil with liquid manure, being a spade-full of sheep's-dung stirred, after soaking in nine gallons of water, and the watering with this should be once to four times with plain water.

Rhododendrons are advancing quite rapidly, and a few weeks fine weather will scarcely fail to bring the early ones into flower.

Routine.—The routine work at this season consists chiefly in attention to cleanliness. In dull damp weather, especially, but more or less at all times, what are called soft-wooded plants, such as the geraniums, are very liable to throw off some of their lower leaves, especially if from fear of cold draughts, the house has not been enough ventilated. These leaves soon become mouldy under the progress of decay; and it is of the utmost consequence to the healthiness of the plants to have them removed, or the decaying matter will damage that which is living. Any leaves, moreover, that from any cause have been injured; often those upon which water has been carelessly spilled, or allowed to stand, or those which receive cold drip from the roof, will all be liable to this decay when the house is more than usually closed up. The yellow dying leaves should therefore be picked off carefully without wounding the stems; and the fallen dead leaves should be picked or swept up. The latter should be done every morning, and the former as often as once a-week. But it should be made a rule to pick off such leaves whenever they are seen, allowing them no time or opportunity to damage the plants. At this season, too, cleanse, by washing the leaves of such plants as may have become filthy, either from the presence of insects, or the growth of a minute fungus which often attacks greenhouse plants, forming on the leaves little black spots, which spread into large patches if not removed. A piece of soft sponge and some warm water may be used. Such plants as camellias, oranges, myrtles, and all the larger leathery leaved plants are much benefited by this washing, which is, moreover, highly advantageous to them, if only to remove the dust—and, in the neighbourhood of large towns, or of cities, the sooty particles—with which in time they become coated, and which, at this season, cannot well be removed by the summary process of syringing.

FEBRUARY.

CALENDAR OF OPERATIONS FOR THE FLOWER-GARDEN, SHRUBBERY, AND GREENHOUSE.

Every fine day now does its part in promoting vegetation. The buds of all deciduous plants begin to swell; almonds and peach trees of the ornamental kind begin to show colour if the weather be at all mild; and all the earliest kinds of flowering shrubs indicate a speedy opening of their blooms. Lawns require mowing, and gravel-walks not intended to be turned, want rolling whenever they are in a fit condition; nevertheless, it is just as possible that the whole garden may be frozen solid, and drive us in-doors for employment. The making of labels, the preparation of sticks and stakes for the support of tall plants and climbers, the examining of tubers and seeds, all help to find us employment; and the breaking of damaged flower-pots and crocks, and sifting them so as to produce them of different sizes, is proper and profitable work for labourers and boys; so also is the turning and mixing of different composts and manures. The planting and altering and planning not already completed must be hastened to the close at favourable opportunities, though it ought to have been done before. Pruning, also, not yet completed, should be persevered in until done. The nailing, or otherwise fastening, climbing plants on walls, pillars, and fronts of houses, must be no longer neglected. Weeding is necessary whenever such pests appear; and great pains should be taken to destroy vermin of every kind, but more especially, the moths and butterflies that may be found sporting about, although few and far between, because the destruction of a single intruder may save us the trouble of exterminating hundreds at a more advanced season, or the sacrifice of our best plants by the devouring caterpillar or the numerous kinds of grub.

Anemone and Ranunculus.—The autumn-planted will require protection with litter or covering of some kind, or in the event of severe frost they would be greatly injured; but this is the chief reason why the growers for exhibition defer planting all their best varieties until the second week in this month. Therefore, at the beginning of February put a layer of rotten cow-dung at the bottom of the beds, as they are at present emptied to the depth of a foot. Let the layer be a good inch in thickness, and return the soil which has been turned out on the sides of the bed lightly into its place, and raised in the middle; leave it to settle a few days. About the second week lay the surface

level, and draw drills six inches apart the whole length, and let them be three inches deep; place the tubers of the Ranunculus or Anemone at the bottom, gently pressing them into the soil; and when all are placed, draw the soil partly back again, so that the tubers may be covered to the depth of two inches, and gently press the soil down upon them. Regulate the surface of the bed, so that the drills show, but that the bed be left neat and clean. In this state they may remain until they are above ground.

Annuals.—One batch of these may be sown in a hot-bed, without, however, having any violent heat. Sow the different sorts in different pots, and as they germinate, they may be placed where they will have more or less heat and air according to their requirements. These will be among the earliest and the principal potted annuals, such as Phlox Drummondii, Rhodanthe Manglesii, Balsam, Cockscomb, Ice-plant, Sensitive-plant, Egg-plant, which are all completed in pots; it will make two seasons by sowing now, and two months hence also.

By the end of the month, a first sowing of all the best annuals may be made for planting out in the borders. These are intended to be grown in pots, and kept in frames; and about May planted out, almost, if not quite in flower. All the most esteemed varieties for ornament should be thus managed, only a few of each being raised as a first crop. Each kind may be sown separately in a pot, and the young plants potted as soon as large enough to handle, three or six in a sixty-sized, three-inch, pot, according to the particular habit of each. The seed-pots, as well as the young plants, when first transplanted, should have a little warmth, or they will not come so forward as will be desired; but the heat must be very moderate. A temperature of 55°, maintained by means of bottom heat, is quite enough, and with this they should have abundance of air.

Auriculas should be, towards the end of the month, cleared of their yellow leaves, the surface of their soil stirred, and the loose thrown out, that they may be top-dressed with light rich compost, comprising one part well decomposed poultry-dung, two parts perfectly rotted cow-dung, and three parts sand, or, for want of the poultry-dung, half cow-dung and half sand. They should be well watered immediately without disturbing the top, and shut up close in the frames a whole day. Sow seed lightly in pans or pots, and cover with damp moss.

Biennials should, if they are not already in their blooming places, be removed to them in favourable weather. Wall-flowers, Sweetwilliams, Canterbury-bells, Rockets, and other subjects used as ornaments on borders, should be always placed there before they make a great advance towards blooming; the autumn is far better than the spring on this account.

Bulbs, in the borders, are making their appearance, but it would be unsafe to fork the surface till it is certain that they all appear; otherwise, those under the surface may be spoiled by the fork. Most of them will be little the worse for frost.

Carnations and Picotees will require to be potted in their blooming pots by-and-by; therefore, if the soil is not prepared for it already, it must be mixed now. The plants at present only want the usual treatment continued.

Columbines are somewhat neglected; but they are the most elegant of all border perennials, and capable of being produced in almost endless variety: comprising all shades of blue and white, all shades of red and white, and self-colours of every shade without white. When perfectly double they are beautifully formed, and whether seen in masses at a distance or in the hand as a cut-flower, it is impossible to admire them too much. As the perennial roots of these will move well now, although there is perhaps little or no leaf above ground, let them be placed at once where they are to bloom.

Dahlias.—Put all the roots intended for propagation in suitable sized pots with ordinary soil, and place them in a hot-bed, or the green-house or stove; but such tubers as are intended to be merely parted may be thrown into the hot-bed or stove without potting, because, when the eyes have fairly started, the roots or tubers may be cut in pieces so long as there is one eye to one piece; and the warmth will expose their eyes before potting as well as after it. It is necessary to water the tubers occasionally, or they might dry up; and as soon as they show their eyes they should be cut up, with a sharp and large knife, into as many pieces as you can make with a good eye to each piece, and pot these pieces in pots as small as will take the tubers; but these may be shortened considerably to make them go into as small a sized pot as possible to accommodate them; for if this were not discreetly done, large pots would be required for some, and the room occupied by the pots would be greater than could be afforded. Seed may be sown in pans or wide-mouthed pots towards the end of the month, if you are anxious to be forward with any particular kinds; only you must be provided with room to accommodate them in proper protection till the middle of May.

Frame Plants.— All plants in frames without heat, should have as much air as can possibly be given on mild days; the surface of the earth stirred when it seems damp or mossy, and the drainage should be examined; for in such case it will often be found clogged up by earth at the proper outlet, or the soil so completely run in among the crocks at the bottom of the pot as to choke them altogether. The plants should be cleared of dead leaves.

Geometrical Gardens.—The beds in this garden should have been filled with evergreens in pots since the destruction of the autumnal flowers. For the sake of variety, the beds may now be re-arranged, and different combinations of the plants effected. By the aid of two or three changes of this kind, in the winter season, a set of potted evergreens may be made to impart much variety, as well as life, to the geometrical garden, during the dead season of the year, when the beds cannot be filled with flowers. The different variegated

evergreens are of great value for this purpose, and so are all such evergreens as carry berries through the winter—the holly, for example, of which alone in the laurel-leaved, the saw-leaved, the common prickly, the hedgehog prickly, the gold-edged, the silver-edged, the gold-blotched, the silver-blotched, the variegated hedgehog, the yellow berried, the white berried, and the red berried, there are very distinct varieties for a dozen beds. The variety among hardy evergreens suitable for this purpose is very great; and no such garden ought to be cheerless or barren, even in the winter season.

Honeysuckle.—The honeysuckle trained up a rod, and made to form a standard, as it were, with a fall-over head, is a fine object in a shrubbery; and nothing is more simple than its training. Let it grow as it likes, one rod or twenty; fasten it round the pole with different cords, every six inches, and on the top all round drive in staple-nails, or eyes, to stand out two inches, and not more than two inches apart; run a wire through the outside and fasten it. The branches having been guided as high as this, may be all cut down to six inches above, and all their side branches will grow over and form a head.

Hyacinths will be above-ground, and may be covered with litter, to keep the frost from injuring the foliage and spoiling the bloom. They may be watered with liquid manure once, as soon as they require watering at all; and the watering should be done in earnest, to soak the ground they are growing in. This liquid manure should be made in the proportion of nine gallons of water to a spadeful of decomposed cow-dung.

Lupines, of the perennial kinds, should be planted where they are to flower, if this was not done in the autumn; and if there be any quantity of seed to raise plants from, half may be sown now, and the rest at a later period. The best family is the Lupinus polyphillus, of which there are many varieties; but those who pretend to grow them will always throw away everything that is not first-rate in quality; because they can be propagated from the root when they do prove good, and a variety worth the trouble may be thus perpetuated.

Mignonette.—Some pots of this favourite flower should be sown, and set on a shelf in the greenhouse, where they may be continued, if required to bloom in pots; or if intended for planting out in the borders for early blooming, they may be removed to a frame when they get four or six inches high, and kept there till planting-out time. These should be sown in five-inch pots, about a dozen seeds in each; and the young plants thinned to about half-a-dozen of the best, when they get forward enough to show their strength. Sandy loam suits them best, though the soil is of less importance now than for autumn sowing.

Perennials generally require to be placed where they are to flower before they progress in their spring growth; all the Phloxes, Asters, and others, should by rights be parted and planted in autumn; but that having gone by, they have to be the more carefully done now.

Pinks and Pansies in beds.—Stir the earth all over the surface without disturbing the roots, and top-dress with decomposed cow-dung laid half-an-inch thick all over the bed. Let the litter be laid over at night as usual, and removed in mild weather.

Plants for Bedding.—If you are not fully prepared with enough of these, begin to propagate in earnest, for the next three months must produce you all you require. Cuttings of Geraniums, Verbenas, Petunias, Hydrangeas, Roses of the China kind, and all other subjects used in the borders and beds in large quantities, should be taken now and struck in gentle bottom-heat under bell-glasses, wiping the glasses every morning, and attending punctually to the required moisture. With care these things will strike very rapidly; and the sooner they are potted off singly into sixty-sized pots the better. When they are once established and are growing, you may take off the tops to strike others from; while the plants, thus beheaded, become stronger and more bushy. But this does not apply to the Hydrangeas, which depend for their bloom on the top strong bud, and therefore must be grown on, and shifted as soon as they fill the old pot with roots.

Polyanthus and Primroses must be well searched for snails and slugs, which attack the tender petals the instant they protrude from the calyx; and if there be any quantity there will not be a perfect flower. Search, therefore, closely, sunrise and sunset, and in dark, cloudy, damp weather, which are favourable to the wanderings of this mischievous race; and if they are at all plentiful sow some fresh lime over them occasionally, for that destroys all it touches. Stir the earth between the plants; keep them very clear from weeds, and always cut the box-edgings very close and small, to keep them from forming a harbour for vermin, which they always will be when left too thick. Sow seed in pans; and if the seed be very choice cover with damp moss till it vegetates.

Sweet Peas.—Sow a number of pots to come in for early bloom. They may be set in a hothouse or warm frame until they have germinated; then removed to a greenhouse; and finally, to a cold frame, where they must be kept till it is safe to plant out, which can scarcely be before May. About a dozen seeds should be dropped into a five-inch pot.

Tulips will be generally up on the protected bed, and the earth should be carefully stirred all over the surface and laid close up to the stems, or rather spikes, which show through. Mat, or cover them still for the night, or a hard frost might considerably injure them; and when the rising spike opens, so that water could enter and lay there, they ought not to receive water at all. The patent covering ought to be placed there to prevent any fall of rain upon them until the bud has fairly risen out of the foliage. The patent waterproof calico is far better than matting; as it excludes no light, and confines the natural warmth of the earth as well as keeps off all rain. The outer beds, which are, or rather may be, unprotected, should always be loosened on the surface as soon

as the spikes are fairly through the ground.

Seeds and Seed-shops.—There is nothing so base as to deceive the cultivator with bad seeds. It may be fine sport to serve out packets of worthless things with names written on the papers, and take the money for them; but that persons in respectable shops should sell flower-seeds without knowing whether they will grow or not, or perhaps worse than that, knowing that they will not grow, is worse than the tricking of any other trade. In other businesses we get something for our money: we may get a bad coal for a good one, stale bread for new, bad wine instead of the best; but we still have something. In the tricking of the seed-trade we have nothing, and, withal, are deprived not only of our money but of our season also. What will compensate us for the absence of coreopsis, of our favourite dwarf larkspur, and seven or eight other favourite annuals from our garden? Yet, believing it impossible that we could have been premeditatingly robbed, we attributed the failure of the half that we sowed early, to some misfortune. Our second, therefore, was sown with better faith, and that has totally failed also. This is not all: we had the same seed for a friend in the country as we had for ourselves, and the annoyance is ten times worse to have been made instrumental in deceiving him. French Marigold, Mignonette, Nemophila, and Phlox Drummondii, are the only four that came up with either of us out of twenty sorts.

THE ROSE GARDEN.

Now we come to a period of the year when there must be some activity in the rose garden. Look well to the fastenings of pillar, arched, and wall roses, and the stakes of standard trees, and repair all that are disordered. Go on with pruning leisurely, but according to the quantity to be done, always keeping in mind that those, of the same kind, pruned soonest, will bloom soonest, and therefore that if two or three seasons of pruning are systematically adopted, there will be two or three different periods of bloom. This then may be kept in view in the pruning of the summer roses, such as the cabbage, moss, and all those which are but their month in flower. The earliest pruned will be a month earlier; the latest will be postponed by cutting them down to two eyes after all the upper ones have been shooting some time. The seedling roses must be kept clear from weeds. The briers that are beginning to push, may be grafted with some of the prunings of the better sorts, and if nicely managed, will bloom the first summer in tolerable strength. In grafting, the greatest care should be taken to make a close and clean fit, and not to have more than two eyes left to grow; some only leave one, but two are not too many. Digging between the rose trees, and clearing the ground of suckers, will be always found beneficial; and, among the seedlings in beds, forking will be found equally serviceable. Roses in the forcing house should have as much air as can be given without lowering the temperature too

much. Plantations may be got ready for the tender kinds of dwarf roses, by well mixing decomposed dung with the natural soil; and the plants, which of course are in pots, should be checked by taking off the tops, otherwise they become too much drawn for bed roses. The tops may with care be struck, but they want great attention, and a little bottom heat. Planting may still be done with such as have not begun to shoot yet.

THE GREENHOUSE.

The plants are now more or less rapidly approaching flower. Look generally to the state of the soil and pots, for now is a good shifting time if the work be properly managed, but the balls ought not to be disturbed in the least, nor the fibres damaged. As the weather may prove mild, the greatest allowance of air should be given. Watering should still be carefully performed, not by drenching all the pots periodically, whether they require it or not, but by examining them, and giving water to none that are sufficiently moist, for all plants ought to be occasionally nearly dry, but not quite; when they are kept long together in wet soil, they are seriously damaged before they exhibit the results on their foliage or flowers.

Azaleas want but little attention beyond watering properly, and training as they are intended to bloom; some of the varieties are very weakly and poor growers, and have to be regularly supported artificially; but we are rapidly discarding them. Among the best of the colours we have had the worst of the habits; and many sticks are required to steady the flower, but the less artificial support they have, the more highly they must be approved.

Camellias are beginning to look interesting, from the number that are partially blooming, and should be brought forward prominently.

Cinerarias. — As the seedlings come into flower, put marks to those that are good for anything, and let the mark or number refer to a book in which the quality of the flower and its peculiar characteristics are described. Shift the successional plants as they may require it.

Climbing Plants.—In the best adapted trellises, much is to be done by constantly placing the branches and shoots on the parts of the trellis they are to occupy. When any plant is allowed to go rambling about, instead of being trained as it goes, the fastening of the shoots is more difficult, and it is a long time recovering.

Ericas.— Heaths require air, and light, and plenty of room, and have great aversion to heat. This suggests their being placed near the openings; but heaths are better in pits than greenhouses, unless they have houses for themselves without other plants. These will require more water than they had in winter, but they must not have it while they are still wet. Each plant, therefore, should be examined before it is watered, and if it is already wet, leave it for a time; or if more than usually wet, turn out the ball of earth to see where the draining is defective, and remedy as soon as possible.

Fuchsias require repotting,

pruning, and properly shaping the plants, allowing for the growth of the young wood. To make due preparation for this, the plants should be literally formed into a skeleton, the upright stem in the middle being the principal, and the spurs being cut close in at the top, and widening a little, or rather lengthening, towards the bottom; for they ought to have a pyridamal form, the branches as long at the bottom as will reach the edge of the pot, and gradually diminishing in length, until at the top, they are quite close into the main stem. The new wood forms the tree, and as the buds appear, they must be regulated as to number and situation, because the next thing to having branches enough to form the tree, is to have them in the right places.

Geraniums should be shifted, if they have filled their pots with roots, until they are in the size they are intended to flower in; and any rambling shoots that seem inclined to destroy the general uniformity, should be shortened, even shorter than all the rest, that the younger shoots, caused by the check given to the main one, may fill up the space instead of the stunted end of the branches shortened.

Hard-wooded, or Botany-Bay Plants, which will generally be rapidly advancing towards bloom, will require careful watering; they must on no account suffer for any deficiency in the supply, or their blooms will be cast off or imperfectly developed. On the other hand, they must not be constantly wet. They should have a thorough watering when necessary, and then the soil should get almost dry before any more is applied, when it should have another thorough watering. There is some difficulty in ascertaining the actual state, whether of wetness or dryness, of the soil in a flower-pot, particularly in the case of these hardwooded (which are fine rooted) subjects, and are always grown in a large proportion of peat earth. The state of the surface soil is very deceptive; a great deal depends on experience. This is one of the great recommendations of the West Kent flower-pot, for all large plants, which is made so that the mass of earth may be readily lifted up out of the pot, and examined. Tapping the sides of the pot with the knuckles becomes, by experience, a useful aid in ascertaining the wetness or dryness of the soil; there is a deadness in the sound if the soil is wet, and a kind of ring if it is dry; but it is only by large practice and experience that this test can be relied on.

Routine.—Pot off, or prick out, all struck cuttings of greenhouse plants; change the pots of those plants which have filled them with roots, for pots a size larger; and stir the surface of the soil of those which do not want shifting. Keep seedlings clear of weeds, and when large enough, prick them out round the edges of pots until they get to a proper size to be potted separately. Keep everything clean and dry, and if the house exhibit signs of dampness, light fires, and give air at the same time; that will dry the house without hurting the plants.

MARCH.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Alpine Plants may now be shifted, if not done in autumn. A soil of equal parts peat and loam, with a little sand, will suit them generally.

American Plants, (as Rhododendrons, Azaleas, &c.) are benefited by a thorough dressing of well decomposed cow-dung. They may yet be removed with care. It is usual to plant them in peat soil, but many will do in loam. They prefer a sheltered situation, and one moderately moist.

Anemones, and especially the double ones, which are tender compared with the single, should be treated in the same way as Ranunculuses (which see).

Annuals.—Whatever annuals of the tender kind are not yet sown, may be now sown on a slight hotbed made in the ordinary way, but about two feet high, with six inches of mould on the top; on this you may place a common garden frame or hand-glasses, and sow the seeds within the space they cover. Sow the seeds in rows, as the most convenient plan for the keeping the different kinds separate. That they must be protected by glass is certain; even many of those which are called hardy, (but which are nevertheless sufficiently tender to be killed by one degree of frost,) require the same treatment when sown so early, or they will not germinate; or if they germinate, will not live. Make the drills with the finger, and sow thinly, and place a label at the end of each row, and cover lightly. Sow also the so-called hardy annuals, that you wish to plant out early, for it will give you two seasons of blooming; for instance, these may be planted out in May in a forward state, and they will bloom almost as soon as those sown in the open borders are up and well growing. These hardy annuals may nevertheless be sown in open borders, for, if properly covered up, they will not germinate until they will stand the weather.

Antirrhinums (Snapdragon).—Plant out in any ordinary soil: propagate the good varieties; they will strike freely under glasses with or without heat. Seeds sown now will produce plants to flower in autumn.

Aquilegias (Columbine).—Plant out early, and sow a few at the end of the month for transplanting.

Auriculas.—The Auricula is this month showing bloom, and the slightest frost is detrimental. Keep them cool, give them air when the weather is mild. As the blooms rise, watering must be attended to, and covering from frosts observed with great strictness.

The effect of the frost, if it reached them, would be various: sometimes it checks the growth, sometimes cracks the petals, and always hurts the colour and crumples the flower. Nevertheless they are hardy, and bear a good deal without any apparent suffering in general health.

Biennials.—The seeds of biennial plants may be sown towards the end of the month, to bloom early next season. Transplant for flowering those sown last year.

Calceolarias.—The shrubby and the best of the herbaceous sorts should be increased by cuttings, struck in heat.

Campanulas (Canterbury Bells, &c.)—Plant out if not already done; sow a few at the end of the month. *C. carpatica* is excellent for bedding.

Carnations and Picotees will now require the most strict attention; they must not yet be watered more than is absolutely necessary for their actual preservation; for the fact of the soil being wet, will not only endanger them from damp, but they are far more susceptible of frost; and when attacked by frost, the fibres are more susceptible of damage; besides which the fibres are now growing fast, and are therefore young and soft.

Caraganas, and the species of *Cytisus*, of dwarf prostrate habit, make beautiful dwarf drooping standards. The latter may be grafted on healthy young laburnum stocks, the former on those of *Caragana arborea.*

Clematis and other deciduous climbers, which have been protected, must be uncovered gradually; they must be kept covered at night. Prune them, and tie or nail in a few of the best ripened branches.

Chrysanthemums. — Plant out, and increase by division of the roots; they luxuriate in a rich soil of loam and cow-dung. Plant a few against walls, terraces, or railings.

Crocus.—Now is a good season to mark the best varieties; keep the soil about them fresh and clean.

Dahlias.—Those which are not yet potted and set to work, may be done at once. Put them in pots no larger than necessary; and, indeed, some of the tubers may be cut away, to prevent the necessary use of too large a one. Here they will throw up their shoots from the collar when they are put into heat, and the cuttings must be taken off when about three pair of leaves long. Some of the more experienced cultivators have followed our previous directions, and by this time have cuttings well rooted. If they are in pots holding more than one, they must be placed in pots singly; and if any of them are of scarce kinds, which you are desirous of propagating, they may have their tops cut off just below the third pair of leaves, and these tops may be struck as before directed for other cuttings. The plants will strike out shoots on both sides, which in turn may be shortened, and thus an early struck cutting may be made the means of producing a number of plants, which is occasionally a great object, although it does not produce them so strong nor so serviceable as those of the first strike from tuber shoots. It is questionable, also, whether a plant so produced will bloom so well, although there are kinds that do not suffer from such treatment.

All the cuttings, struck and not struck, should be watered over the foliage as well as their roots, and be shut up and shaded for a few hours; but it is a very good plan to water in the evening, at shutting-up time. As those plants which are not intended to be cut down, grow into a fair size for planting out, they should be removed to a cooler frame, that they may become gradually more hardened; for although nothing short of frost will hurt them, when prepared by cooling gradually, they would suffer considerably if taken from a hot-bed to the open air direct. In potting the tubers for breaking the buds to form cuttings, every appearance of decay, however slight, should be removed, even if it cause two-thirds of the roots to be cut away. Seedling tubers, that are to be planted whole, may be at once put into the ground four inches deep; they will not come up before the time they will bear the weather.

Evergreens may be transplanted now, but we prefer the early part of autumn.

Fuchsias. — Partially uncover those in sheltered situations; cut the shoots back to fresh buds; and train them mostly to one leading stem. If they are much injured, cut them down to the ground, and they will throw out young shoots from the roots, and thus form compact and handsome bushes.

Gentianella (Gentiana acaulis) may be planted for edgings to flower borders. It does well in the shade.

Grafting.—The choice and rare ornamental trees and shrubs that are increased by these means, must be attended to this month. If not already done, the grafts should be cut, before they begin to start.

Hyacinths and Narcissus.—The beds out-doors require to be protected, the same as Tulip beds, with hoops and mats. Forced bulbs, which have done blooming, should be hardened in a cold frame, and planted out next month in a warm sunny situation, where they may perfect their foliage.

Jasmines and Honeysuckles.—Propagate still from cuttings; uncover gradually where protection was judged necessary, and have them all pruned, and nailed or tied up early.

Mignonette.—Sow plenty of this in the borders when the ground is light, and also in pots, for turning out.

Mimulus.—Increase by division; plant either in beds or patches. The numerous varieties of *M. cardinalis* and *M. roseus* are well adapted for large beds.

Pansies will commence this month to bloom in the open air, and all of them begin to grow fast, unless there is frost to check them. It is well to cover them with any open litter, like peas haulm, which keeps off a good deal of frost, protects them from all the cold winds, and does not take away light. The beneficial tendency of this kind of litter to all dwarf plants through the winter and early spring months, is either not half enough known, or being known, not sufficiently practised. Those in pots, under glass, should be shifted, if not done already; or, if intended to be planted out in beds, the sooner it is done the better. If there be any shoots of

choice sorts that you are desirous of propagating, and that can be spared without spoiling the appearance of the plant, they may be struck very easily under a bell-glass, and in any of the slight hot-beds that may be at work; not that heat is necessary, but that it hastens the striking, and, therefore, for choice things, is better than waiting for the ordinary method; otherwise they will strike in the cold frame. It must be recollected that, in all cases where bell glasses are used, the inside should be wiped dry every morning, and the compost kept moist, but not wet.

Perennials. — Many perennials require to be sown now, to bloom next year. Treat them as recommended for biennials. Perennial plants may be divided and transplanted during the early part of the month, but the sooner it is completed the better, if the weather is favourable.

Pinks.—Put out those which have been kept in hand-glasses; plant them a foot apart, in sandy loam, leaf mould, and rotten cow-dung.

Pinus. — Still protect those which are putting forth young shoots. In planting specimens, drain the ground well; trench, and plant on the surface, using fresh loam to place about roots.

Polyanthus.—As the seeds germinate expose them gradually to the light, by removing the moss, by which the surface was covered.

Primroses.—In favourite spots place a little moss about the plants, to prevent the rain from dashing the mud on the flowers; plant young plants, and sow seed.

Propagate ornamental trees and shrubs of all kinds, according to their respective natures, by cuttings, layering, or grafting.

Ranunculuses, after planting, should be covered slightly with litter, to prevent the frost penetrating the ground to the tubers; and if any of them are not yet planted, they should be got in without a moment's delay, as directed last month. In very mild weather, they will frequently be above ground before the end of March, and there is additional reason then for covering; but, in all cases, the litter should be removed in warm genial weather, to let the beds have all the advantage of sunshine; it will be unsafe, however, to leave them uncovered of a night after they are once in the ground, until the middle of May.

Stocks.—Pot and prick out the early sowings; remove them to a cold frame when they are become established, and harden them off by airing freely. Plant out those kept in pots during winter, say at eighteen inches apart; and the richer the soil the better.

Sweet Peas.—Harden off those sown last month, and sow now in the open ground, both in patches and single rows.

Sweet Williams.—Finish planting out; let them be put in masses. Sow a little seed at the end of the month.

Thrift edgings may be taken up and replanted: unless this is done every two years, they are apt to get wide and unsightly.

Tigridias.—Bulbs may be planted in beds, in warm sheltered situations. Seeds may also be sown.

Tulips. — These, on coming through the ground, generally

crack the surface all over the bed, for the rains will have closed the compost at the top, until the spikes break it. The whole of the surface should be stirred, and any lumps bruised, so that it may be laid pretty even: it is of the greatest benefit to the bulbs to give them air, and of infinite service to the stems to lay the soil pretty close to them. In some kinds of loam, from the swelling of the bulb, and the progress of the spike through the earth, it will be actually cracked, so as to almost show the bulb, which would thus be exposed to all the vicissitudes of the weather, and the attacks of insects, which could not find their way through crumbled earth, lying close, though lightly, on the bulb and round the stem. If any vacancies occur where the plant has not come up while the main quantity has, it will be necessary to search carefully for the cause. Sometimes a stone, or a hard lump of dirt, will have turned the spike downwards or sideways for a considerable distance, and thus thrown it behind; besides which, it may so far impede its progress, as to throw it a long way out of its place, before it can grow up at all. The removal, in time, will relieve it, so as to make the delay of small consequence. It may be, however, that the plant is affected; the outer leaf may have begun to rot, or, as is sometimes the case, may have so completely closed over the other, as to prevent its growth, and even cause it, if neglected, to decay, instead of grow. The decayed part must, in such cases, be entirely removed with a sharp knife, and the plant be laid bare down to the bulb. It should then be covered a few days with a bell-glass, and as it progresses, the hole filled up with fresh loam, for by no means ought the same to be returned to the place, and all the portions of the rotted leaf or leaves should be thrown away from the bed. The covering of nights, and not uncovering even in the day if there be frost, must be always observed. Should the weather be mild towards the end of the month, and there be refreshing warm rains, it will be of service to let the tulips have them; but be doubly careful that the frost does not reach them afterwards, or there will be mischief. It has been preached by the old florists, that tulips should not be watered. This is perfectly erroneous; it is true they do not want much, but look at the strength the foliage acquires by a warm shower, and then ask yourself why, in the absence of rain for any continuance, water should not be beneficial. It is all a mistaken notion, and arises from this fact—the roots will go down after moisture, and the foliage will therefore never, or at least rarely, flag, even in a long drought; but the foliage requires moisture as much as the root, and though it would matter but little whether a drop of rain ever reached the roots from above, or a drop of water ever went below the surface, the foliage ought not to go without moisture. There is no plant in the botanical world that derives more benefit from a gentle shower than the Tulip; and when, as is often the case, it can get none for a considerable period, none derives more benefit from a gentle watering all over the foliage, but

not in such quantity as to penetrate the earth much, for that is immaterial. It should, however, be soft river or pond water, or rain water, that is used; and though it may seem trifling, if, on plunging a thermometer into it, there appears many degrees difference in the heat, a little warm water to raise the temperature to that of the air, or a trifle above it, will be of infinite service.

Violets must be kept clean. Provision should be made at the end of the month for the following season, by planting out the young rooted runners in frames, upon a rich soil; keep them close and shade them for a day or two; then air freely, and afterwards remove the sashes altogether. Another plan is now to scatter some fresh soil over the beds, in which the young runners will root, and early in autumn take them off and plant them in prepared beds or frames.

THE ROSE GARDEN.

Pruning.—Those who take delight in a succession of blooms as long as they can be produced, should, the first week in the month, prune one-half the summer Roses. By summer Roses, perhaps we should be considered to be using an improper term; but what we mean is, the rough-barked Roses that usually bloom in June, for one month pretty nearly sees the whole of the Cabbage or Moss Roses out of flower; and a great many of the same nature last hardly a month. By cutting them the first of the month, (and some people begin even in February,) the buds below the pruning begin to swell directly and push early. Let this pruning be done with judgment; first cut off the thin spindly branches close to where they spring from, for they are sure to be of no use for bloom or growth, and only weaken the root; then shorten the strong shoots according to the form you wish them to assume; the further back they are cut generally the stronger come the shoots: but if the present race of rose-growers commit one fault greater than another, it is that of cutting in too close when they prune, for they ought to have a proper regard to the form they wish the tree to take, and especially standards, which are too often cropped as if they were to form models of mops, instead of trees on a small scale. The proportions of these Rose-trees should be like those of an oak, an elm, or any other handsome tree; the head should be large in proportion to the height of the stem; the head should, when fully grown, be quite as large across as the stem is high from the ground to the bottom branches; therefore, in pruning, cut sparingly while the Rose is getting to its size, and, when once it has attained this, the branches that grow, from season to season, may be shortened to even a single eye, if desirable; but it may be taken as a general rule, that the less eyes left to grow, the more vigorous the growth. In directing the pruning of a certain number at the very beginning of this month, we wish it to be understood, that if the wood be strong you may leave on three or four eyes when you want branches, and you must be guided by your wants. Those that you now prune will be rather later than if they were not

pruned at all; so that if any present rather a pretty shape without pruning, they may be left to bloom as they are, and thus start a little a-head of the early pruned ones; but the object of pruning half now, and half, as we shall hereafter recommend, next month, is to have two complete seasons, for next month the buds nearer the ends of the branches will have advanced considerably, and those nearest the stem will have been retarded by the growth of the others: by pruning off all the buds which are so forward, and leaving only those which give hardly any indication of starting, this will throw them back a good month, and thus give you two complete seasons of the same kind of Rose, to say nothing of the different seasons at which many of these sorts come in flower; so that with care, and pruning some back early, and others late, a very continuous bloom may be secured with the various Roses. The principal pruning required by the China and Noisette kinds, is to cut out the small, spindly, weak shoots from all parts, and shorten the principal branches and shoots to the form you want them to assume; but weak thin shoots should never be allowed to remain on, for they cannot throw out strong growth, and they take away the strength from those which can. If the spring be very backward, and the buds of the briers have not begun to start, they may still be planted for stocks, but it is a forlorn hope when things are left past the proper season. Nothing but just getting possession of a place, and an attempt to save a season with some out of a number, can justify it. In pruning the tall-growing Roses for pillars or walls, or fronts of houses, the small thin stuff should be cut clean out, and those strong enough to bear flowers should be shortened, except where you want the wood. If this be not well looked to, the thin shoots, which are only half grown, and half ripened, will often die back, and the wood get blind and bare; whereas, by cutting any useless shoots away clean, stronger buds will come away from the base, and growth is maintained all over the stems, however tall.

Climbing Roses.—Many Climbing Roses should be spurred from the bottom to the top, that is, the shoots cut into two or three eyes, more or less, according to the space they have to occupy; and this attention to the work you wish a Rose to do, the space it has to cover, the shape you wish it to assume, is the more necessary, because the neglect is so general among all classes of gardeners.

Fastenings.—Looking well to the fastenings and stakes, treading the ground close about the roots, and removing all suckers and shoots of the stock, is merely routine business, which is necessary, but too often thought little of until it is forced upon us.

Roses in Pots.—Roses forcing, small China Roses for bedding out, and cuttings ready to pot off, should be attended to, so as to keep them now upon the move. Look well over the previous month's directions, and do every thing that has been recommended and left undone.

Cuttings for grafting.—At the end of the month gather all your cuttings for grafting, the fresher

they are the better, and the wood must be ripe. Those you have already got, if any, will not have been much the worse for keeping if they have been put in the ground, because Rose-cuttings will actually strike and do well; and as they cannot be much the worse while they are placed in the ground, why they will answer the purpose of grafting: but the present month is better for it than last, and as it is pruning month there is no difficulty about cuttings.

Seedling Roses.—Sow seeds in large pots or pans, in good rich soil, strewing them thinly, and just covering them with sifted mould; care must be taken that the seeds, when once sown, should never be thoroughly dry, for alternations of wet and dry would destroy them. In a large body of earth, such as that in a carnation pot, there will be enough moisture to preserve seed damp for a very long time. These should be set in a cold frame.

Seedlings of last year's sowing must be cleared of weeds, and if any of them are budded, look well to them, and see that the stocks are freed from all shoots and buds of their own growth, as they will, if allowed to grow, greatly check the buds which are on them. If any seedlings of last year remain in the pans, and have not been planted out in pots singly, they should be potted now in size sixty, or left to plant out in the open ground in May. But as the bulk of them may be already so treated, or planted in the open beds, to be sheltered merely by litter, the only particular thing to attend to is the weeding, stirring the earth between them, and generally keeping them clean. Beware, too, of slugs and snails; if there be any in the neighbourhood, use all the remedies for catching them in the bed, and preventing others from entering.

CONSERVATORY AND GREENHOUSE.

Light fires in damp weather, and give air at top of the house, to dry the place. Let this be done in the morning, and continued all day; apportioning the opening at the top to the temperature, which the ventilation should prevent from being materially raised, the object being to dry the house, and not to raise the heat. In watering, waste as little as possible, as the frequent necessity of closing the house against frost, makes the damp the principal enemy to be feared, and slopping quantities of water about unnecessarily increases the evil. Train climbing plants on their trellises as they grow, that the face of them may be always fair; and if any are of a form to require a face all round, the plant must be turned to the light daily. Stir the surface of the soil in all the pots that have indicated damp and moss: examine the drainage of any that appear more moist than others, and see that all is clear, for the wet would soon destroy a plant. Many of the hard-wooded plants will begin to swell their bloom-buds, and must have constant attention paid to the degree of moisture in their compost, for they must not have too much; and what they have should be soft, pure, and rather of a higher than a lower temperature than the house. There is a great good or a great evil administered in watering plants.

APRIL.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

The Auricula.—This is a most important month in the culture and exhibition of the Auricula; the trusses of bloom rise, perfect themselves, and fade. Through all its progress it requires care and watchfulness. As soon as the truss begins to grow and develope its pips, they should be reduced in number, by taking out with small pincers those least likely to be perfected; but you must mind that, seven being required for the exhibitions round the metropolis, and five in places where they are least particular, you must not reduce the number within one or two of what you require, until the flowers are showing colour, and you can perceive which will be the most perfect. As soon as you can handle the pips to direct their places in the truss, some very fine moss should be tucked between the footstalks, to give all the pips room alike to open; for if they are left to themselves they will be crumpled, and their shape will be spoiled by crowding each other: the moss between the stalks can be made to throw back the outer pips, and thus give room to spread the inner ones. In trusses which originally show ten or a dozen pips, as soon as you can get hold of the smallest, and of any misformed ones, the truss may be reduced to eight; this gives you an opportunity of removing the least perfect on the day of show, if there be one at all imperfect; for a bad one, though sometimes retained to make the seven, should never be kept to make eight; generally speaking, seven makes a more handsome truss. As soon, however, as the bloom trusses are ready for all these operations, they must be protected against the hot sun. This is best done with the transparent covering for frames; and when the flowers, from their rapid growth and opening, want daily adjusting, it is right to find them a warm corner, at least one sheltered from the north-east winds, and there place them on a table, with hand-glasses (propped up nearly to the edge of the pots) covering them: this is easily done with inverted flower-pots, of rather a smaller size. An ordinary full-sized hand-glass will cover nine plants, but if you have plenty of room, and glasses, they are better not crowded. All the plants must be examined daily, and the moss between the pips so adjusted as to make allowance for the expansion of each pip without touching any other. Of nights and days, they must be covered against extremes of heat and cold. In the daytime the transparent

calico will keep off enough of the sun; and at night they must be closed with heavier material against cold, for a chill will fix the blooms, and prevent their opening flat. By watching the blooms, and keeping all the pips in their places while they are growing and opening, they require nothing on the show-day but gently withdrawing the moss from between the footstalks, under the blooms, so as not to injure the delicate powder which gives beauty to this favourite flower, and the pips will naturally close together at the edges; a little adjustment of them in their places, so as to prevent them lopping over each other, will be necessary at the last moment. Water is to be given freely all the month, and especially to the blooming plants, while all offsets and small plants, though not so lavishly supplied, must nevertheless be kept moist.

Alpines.—Increase the supplies of water. Plant out what can be spared in romantic spots, but keep duplicates of the better sorts in pots.

Anemones.—Sow early on a loamy soil of medium texture and richness; separate the seed by mixing with silver sand; sow thin, and cover slightly, and shade if the sun is scorching.

Annuals.—Harden off and plant out those of the hardy kinds kept in frames, and sow again early. The half-hardy kinds must be shifted, and put out by the end of the month in a good situation; preserve the best to flower in pots. Those transplanted protect by inverted pots, or fir or other boughs, from wind, cold, and sun. To keep off vermin, strew quick-lime around them. Sow both in heat and in the open border; the slightest kind of hot-bed will be sufficient.

Biennials and Perennials are sown this month or next, that they may acquire growth during the fine months; when they are large enough to handle conveniently, they may be planted out in nursery beds, to be strengthened and got ready for planting where they are to bloom, before the winter sets in, autumn removal being far better than spring.

Bulbs.—As the bulbs come into flower examine them carefully, and see that they are true; if the different sorts or colours are mixed, mark them while in flower, so that the mistake may be rectified when the roots are taken up. When the ground is required for other plants, the bulbs should be taken up on the first calm moist day that presents, and carefully laid in so as to ripen their foliage without being again disturbed; if this is done carefully they will not suffer very much from the change.

Carnations and Picotees.—These must be potted this month in size sixteen, or twelve, or eight pots, according as you wish to have one, two, or three plants in a pot. The compost has been already described. The mode of potting is to fill the pots one-third full of crocks, rather sunk in the middle, to form a basin; then put some soil over the crocks, about enough to make the ball of earth in which the plants are taken from their store pots stand, so that the upper surface may be level with the top of the pot; now take the plant, with its ball of earth, out of the small pot, by tapping the edge of

it wrong side downwards, with two fingers on each side of the plants, so that the ball and plants will be bottom upwards, and the surface in your hand; turn this over gently, and put in the middle of the large pot; fill up all round it with the compost, gently pressing with a small stick, so that it may be closed about the ball, but not rammed hard; give the large pot two or three taps upon the table to settle it all together well, and before leaving them all, give a little water. These, if potted early in the month, should be put into a sheltered situation, and by right on shelves, or stages formed of boards, placed along flower-pots turned wrong side upwards in flat pans of water, to keep off vermin, which might otherwise crawl up the stage, and eat the plants. If you have a proper stage, of course there need be nothing used but the stage: the temporary place proposed is only in case you have no regular stage. It has been said that pitch is a good thing to mix a little of with the soil. The inference is drawn from a fact which has been related, that when the sticks which are placed in the pots to train them up are dipped in pitch, the roots mat round them so much, as to prevent their being withdrawn without dragging the plant or plants up with it. Charcoal has also been recommended, and a few lumps of it can do no harm; but for the supposed operation of charcoal on vegetation, it is much more likely to be efficacious as a top-dressing. It matters but little what period of the month you choose for doing this work of potting, but, as it is sometimes not done all off hand, the best way is to begin early; and in that case let them all be put into some shed the first few days, or under frames or other covering from the sharp frosts which frequently come during the month of April.

China Asters. — The principal batch may now be sown on light rich soil, under shelter; they do not require heat.

Clematis and Deciduous Climbers will be benefited by thinning the shoots, as with fruit trees; tie and nail in as required.

Crocus. — At the end of the month the leaves may be tied up in knots, out of the way of other plants, until well ripened; meanwhile the ground can be sown or planted.

Dahlias.—Remove plants which are large enough for planting into a cool frame, and be careful no frost nor cold winds reach them, for they are very tender. Continue taking off cuttings, and striking them in their single pots, if you have room; if not, a number of cuttings round the edge of a larger one. Take the tops off the forward plants, of which you require great numbers, and replace the decapitated plant in heat, to throw out its side-shoots.

Fuchsias.—Remove the coverings by degrees; thin out the shoots, and in most cases train them with one leading stem.

Godetia.—This fine genus of ornamental hardy annuals offers an exception to what is usual among annual plants, for they do best in *poor* soil, especially if it be rather light and sandy; their delicate tints and markings are brought out better under such circumstances than in rich soil. Every

garden should have *G. rubicunda*, *G. Lindleyana*, *G. vinosa*, and *G. Romanzovii*.

Hardy Creepers. — Attend to these, and let the shoots be properly regulated as they grow; they can never be so well done, nor done at all without injury, if they are once allowed to get entangled.

Herbaceous Plants.—Plant out herbaceous plants generally, in the borders, clumps, and beds, requiring such ornaments.

Hollyhocks. — These are fine flowers for planting among shrubs; they may be sown during this month for next year's flowering.

Honeysuckles, Jasmines, &c.— Thin out the shoots, before they require to be nailed or tied, and attend to that when necessary.

Hyacinths.—The beds of these plants should be slightly protected at night, and during heavy rain, where fine blooms are looked for; and also shaded from intense sun-heat. Water the beds if the weather is dry.

Laurels, Laurustinus, &c.—Cut out all shoots destroyed by the frost; the head of the bush should be well balanced; this should be done immediately.

Lobelias are all worthy of attention. *L. fulgens* and *splendens* should be separated, and potted afresh into light soil, and placed in a hot-bed for a few weeks; prepare a place for them by digging and richly dunging.

Mignonette.—That kept in pots may be planted out the middle of the month, to give immediate effect; thin out the early sowings.

Mimulus (Musk plant, &c.)— These plants are all easily grown, and beautiful either as single plants or in masses. The musk-plant forms an excellent summer bordering, and will succeed in a shady place.

Pansy Beds may be formed by planting out the struck cuttings every fortnight, if the cultivator means to exhibit, for they go off sometimes awhile, and it is better to depend on several seasons of planting than on one. Pinks and Pansies ought both to be planted at least six inches apart, and not more than seven in a row, across a four-feet-wide bed.

Phlox Drummondii may be planted out towards the end of the month, if the weather continues favourable.

Pink Beds may (although it is highly improper to delay the operation so long) be yet made; but the greatest caution will be required to remove the roots whole, to avoid their losing the moisture by exposure, and to keep them out of ground as short a time as possible. The bed should be formed of rich compost; that is to say, rich in vegetable mould, or leaf mould as it is called, and thoroughly decomposed cow-dung, which is formed into mould also by decay. The pink always requires plenty of vegetable matter in the compost, and the more necessary does it become if removed so late.

Polyanthuses. — Treat these much the same as auriculas, if they are in pots; but if in the open border, which is by far the best way of growing them, stir the mould up between them, and give a good dressing of leaf-mould and cow-dung mould; take off dead leaves, guard all round the bed from slugs with some fresh lime, which will keep them

away altogether; but the lime must reach all round, or they will be able to get to the plants, and they soon destroy them when there is a beginning made.

Ranunculuses. — Continue the protection of loose litter, not only of nights, but in cold, raw, wintry days, of which there may be many yet.

Shrubs.—It is a late period to plant out shrubs, but if you have not already done all you want in that way, you must exercise your ingenuity to remove them as whole as you can. Many deciduous plants cannot be removed, for they are growing rapidly, and would flag past recovery for the season, if not actually die, with all the care that could be used; exceptions are made to every thing that can be bought in pots, and which can be removed at any time and in any weather, by taking the precaution of soaking the whole ground around them with water; but if they are turned out of the pot in dry weather, when the earth is parched, and merely watered in, as too many do such things, the parched earth around soon absorbs it all, and the plant suffers accordingly. It is well to do all these unseasonable movings after wet weather has prevailed; but when you have not this opportunity, and do not like to wait for it, soak the ground completely all round for some distance, and follow it up by daily supply, until the rain relieves you of the labour.

Stocks.—Many may be planted out, and others brought on to follow them. German stocks sown now will bloom finely in autumn; the soil must be rich and well worked.

Sweet Scabious.—Seeds of this plant may be sown now; the plants will come in serviceable next September, when flowers are getting scarce.

Sweet Williams.—Sow a good bed of these from the best selected seed that can be obtained.

Tender Annuals in Pots.—Balsalms, Cockscombs, Egg Plants, Ice Plants, Tricolors, Amaranthus, and other plants, usually grown into specimens, must be shifted from the pots they were first pricked into to those of a size larger, as soon as the roots reach the edges, and must be continued in heat. If the first sowing has not yet been potted into single pots, let it be done at once, or as soon as they are large enough.

Tulips.—Continue the greatest care of these delicate subjects, not allowing the frost on any consideration to touch the best bed, on account of the damage it does to the bloom—for the plant hardly feels the hardest frost, even when it reaches the roots; allow no weeds to spring up among them, and protect them against high winds, although a gentle agitating breeze does not by any means hurt them; cover of nights, even if the weather be warm, but they should be uncovered by daylight, if the weather permit. Gentle showers will not injure them; on the contrary, if mild, it does them great service; and if the weather be dry and parching, be not afraid of syringing the foliage all over. If, despite of your care, the frost catches them, syringe them all over with cold water, and let no sun reach them till they are thawed. If the earth was not stirred between all the bulbs last

month, it must be done directly; and if they have had much rain since it was stirred, so as to close the surface and make it run close together, it may be gently stirred again. If any of the foliage has a spot of yellow on it, or any appearance of canker, remove the affected part with a knife; for if the whole foliage above ground be cut away, there is more chance of the bulb escaping than if the canker was left on, for its increase until the very heart of the plant, and the bulb itself is rotted, is almost a certainty.

Violets.—Strew over and about the old plants with fresh soil, to encourage runners, from which young plants will issue; they can be transplanted when well rooted.

Wallflowers. — Seeds of the single ones should be sown towards the end of the month, for next year's blooming. A good supply of cuttings of the double ones should be got in. The varieties most worth seeking for, are a double blood-red—flowers very dark; a double bright yellow, of brilliant colour, and with narrower leaves than any of the others; a dwarf dingy double yellow, called the Hornet; and a double purple, which has flowers of a peculiar purplish tint. These should be rooted under hand-glasses, and kept in pots through the winter.

Gravel Walks should be turned towards the end of the month, and rolled smooth; it gives them all the appearance of new ones; and if the gravel be too dirty or too thin, a fresh coat of it will be desirable.

The verges of beds and borders should be cut even, and of uniform width, for their growth during the winter is generally uneven; the most hardy grasses continuing to thrive through almost all weathers, while the more tender are checked through the winter.

Lawns. — When the grass is rather thin, either scatter some rich soil, mixed with some of the proper fine lawn-grass seeds, or lay fresh turf: if it is not very bad, the first is the best plan: the soil should be put on when the ground is damp after rain, and afterwards rolled down. All lawns should be frequently rolled and swept, and mown. Much of the beauty of a lawn during the summer depends on *commencing* to mow early in the spring, and *repeating* it very frequently, say once a week.

Borders will by this time show all their bulbs and herbaceous plants, so that the surface may be stirred up and raked without damaging the contents; whereas, if you began before all these things were up, although labels might point out the places, they would be in great danger.

Tie up the stems of any plants that require support; this is best done as soon as it is seen to be required, and not left, as is too often the case, until the stems are blown on one side, and become crooked, in which state they can never be tied up in an orderly manner.

Water the different kinds of choice flowers carefully if the weather proves dry: a good deal of their success depends on their being properly watered when the blooms are advancing.

THE ROSE GARDEN.

Grafting.—This month, even in ordinary seasons, Roses begin to grow in earnest. At the early part

of it, grafting should be done. The stock should begin to swell at the buds; and whether the graft has begun to swell or not, is not of much consequence. The first thing to do is to make a sloping cut, to take off the top of the stock; and this cut should be very clean, and close to a bud, which should be pretty near to the top of the slope. The object of this bud is to draw the sap up to the highest part of the stock. The best way to join the graft to the stock is to cut a slit in the stock on one side of the bud, not near enough to damage it, and take out a piece, with a very sharp knife, of the form of a V. There is no difficulty in this, because the Rose-stock is pithy in the middle, and a sharp strong knife will go through one side very well three inches down; a smaller knife should now be used to cut the outer part of the slit wider, so as to make room for a piece of graft, cut with a sharp edge, of the form of a thick-backed knife. The cut must be very smooth, so that a graft of the proper form should fit close. This slit being on one side of the top bud in the stock, which is cut sloping, will of course be rather lower than the bud itself. Now we come to the graft: this should be of well-ripened wood; two eyes should be below the top of the stock, and one or two above; this must be cut with a sharp edge and a thick back, without the least disturbance of the bark at the back, because the piece must be fitted so that the bark is even with the bark of the stock; when you have fitted this to your mind, get bass matting, or coarse worsted, to tie it in its place; and this done, cover the whole with grafting wax, which should be made to melt at a moderate heat, so that you can bear your finger in it without absolutely scalding; but to harden in the ordinary temperature, so that it effectually excludes air from the place where they join, and thus promotes the union of the graft and stock.

Budded and Grafted Roses.—Look well at the stocks of all last year's budded and grafted Roses; take off all the growth of the stock wherever there has been any, and rub off all the buds of the stock that start. The only exception we make to this rule is with regard to the top bud of the stock, which being there to draw the sap up past the graft, must be allowed to grow until the graft has united; but as soon as it has started four inches it must be topped to check it a little, and as soon as the graft begins to grow, the growth of the stock may be stopped. Keep a good look-out for suckers, which will sometimes come up from the root, and make rapid and distressing growth, checking very much all the advances of the grafted portions. Those stocks which have had their buds fail, and are intended for budding again, should have all the side shoots cut off, and all the stem that is above the upper growing branch, because all above the upper branch is dead and useless,—not only so, but there is a risk of its dying down further: those briars which are intended for budding must be trimmed close, and cut so as to leave a bud at the top.

Pruning.—If any Roses have been left over, according to last month's directions, for late blooming, cut them back to two eyes, (or more, if the wood is wanted to fill more space,) for it will be

found that all the buds toward the ends of the branches grow, long before those close at the bottom.

Succession Plants for the forcing-house must be taken in if you are likely to require more, and so must Roses for showing in pots; but this must be regulated according to the season at which you require them. Those who want to make the most of Roses, may bloom them every month in the year.

There is no Rose that propagates much easier than the old Moss Rose; by laying the branches down all round, and pegging them to the ground at the joints, they will root all along. Even now the branches may be pegged down just under the surface, and will be sure to root, but autumn is the best time.

There is a method of growing the tender Roses which is worth trying for clumps. We speak now of the dwarf delicate varieties that do not stand hard frost. Plant them about nine inches apart in a well-prepared bed; get large white flints and place between them, so as to shelter them half way up, and only leaving them room to grow; and even stuff good moss here and there in the vacancies, partly for warmth, and partly because it is showy. The Roses, if well chosen, will bloom all the summer, and even a hard winter will only cut them down to the moss: they will in the spring grow as vigorously as ever. The end of this month such a bed or clump may be planted by turning the plants out of the pots, and placing them at proper distances, as directed.

THE GREENHOUSE.

The plants here are generally very miscellaneous — Geraniums, Epacris, Heaths, Camellia japonica, the varieties of Acacia, Hovea, Chorozema, &c.; many of which, where full collections are grown having separate pits or houses, are in more moderate establishments grown together. Most of these subjects require merely protection from frost; they want no heat beyond that which is sufficient to banish frost. If 32°, being the freezing point, be avoided, there is not one of these subjects that will be the worse for never suffering the warmth of 35°. Such being the case, the object is to keep down the temperature by opening windows whenever the weather is mild and there are no cutting winds; the great difficulty, however, is to keep down the temperature during a frost, for the necessity of firing is obvious, and the most constant attendance is required to see that the temperature is not raised too high, for it must be checked then by letting out the heat at the top of the house, and unless this is done cautiously there will be mischief. The great disadvantage in increasing the temperature is, that the plants set off growing, or are drawn up weakly, or they are forced into bloom before you are ready for them, or they suffer changes and checks, which perhaps throw off the bloom altogether, especially the Camellias. Give therefore, this month, all the air you can; and if you can so manage, rather cover up against light frosts, than use fires: of course you must be prepared, at all risks, to have the aid of fire-heat in any very severe weather, but not more than you can help. As soon as the plants show their flowers, remove such as are required into the conservatory.

MAY.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Anemones.—The autumn-planted ones in a forward state, require nothing but watering; seedling beds to be kept clear of weeds; and any that may be in flower to be marked or rejected. Seed may be sown in a rich open bed.

Antirrhinums. — These should be hoed between the rows in the open ground, and those in pots shifted to others the size they are to bloom in. We speak of the fancy varieties grown in collections.

Annuals. — A second sowing may be got in, in the beds and borders, of those which were sown in heat for planting out and potting, such as Nemophila, China aster, Stocks, Mignonette, Phlox Drummondii, and French Marigold. Those ready for planting out should be got in after rain. They will bloom much earlier than those sown now, which will succeed them in flowering.

Auriculas.—As the blooms of these decline, let them be placed on a hard bottom and have all the weather, in a situation shaded from the mid-day sun. If you do not want the seed, pick off the pods, but do not shorten the stem. Those who have the convenience should place them in frames, where they may be allowed all the genial rains and yet can be shaded, and if necessary covered from an excess of wet.

Biennials.—Wall-flowers, Sweet Williams, Canterbury-bells, and two-year Stocks, and all biennials, may be sown this month.

Balsams. — Shift these into larger pots as they fill the old ones with roots. Keep them in a hot-bed near the glass. At the end of the month you may plant out any number in the common border.

Campanula.—The fine chimney Campanula should be now shifted into their largest or blooming pots, in rich soil, and be allowed to grow in the open air. As the shoots rise, regulate the number you want, and cut the others down. Put in the frames or stakes to which they are to be trained.

Carnations and Picotees should be well watered, and traps set to catch earwigs and other vermin. They ought to be placed on a stage, or on shelves so constructed as that the legs or supports may stand in dishes of water. The stakes should be placed in their pots if not done already. It is a bad plan to neglect this too long, as it may damage the fibres when they once begin to spread abroad in the pot.

Chrysanthemums. — These may be struck now as well as in the next

three months, but the later they are taken from the tops of well-grown plants, the better. Those struck now may be grown until July, when their tops may be struck again, and form very dwarf plants, while the stems of those they are taken from may be converted to fine bushy ones. They will strike freely now under a hand-glass in the common border, or in pots under a bell-glass.

Climbing Plants on walls should be fastened as they grow, particularly weakly subjects like Clematis, which break with the wind if left hanging about. They ought never to be neglected two days, for they are worse for it.

Cockscombs.—Let them grow without watering until they are starved into the premature showing of their blooms, when the roundest and fullest are to be selected and potted singly into sixty-sized pots, put into a hot-bed in good condition, kept near the glass with plenty of water and heat, and as they fill the pots, changed to larger ones, constantly kept up to the glass, with unimpaired heat.

Crocuses.—As soon as the grass of those bulbs that are to remain in the ground turns yellow, it may be cut even with the ground. All that are wanted up may be had up, and kept with their names, dry and cool.

Crown Imperial.—As soon as the foliage fades into yellow, cut them down to the ground or dig them up, but such soft bulbs should never be long out of ground.

Dahlias.—Take off cuttings and strike them one in a pot. There is nothing so good for this as a common dung bed, but the propagating house is available. Until you plant out, those which are struck should be put into cold frames, not to be subject to the weather, but to be gradually inured to out-of-door treatment, till the middle of the month; when they may be planted out where they are to bloom. Let the stakes be first driven down where they are to remain; then dig holes at the stakes and put in the plants. Then use the pots they are taken out of to put on the stakes, with a little moss inside to form a trap for earwigs, and examine them daily from the first. Dahlias want six feet of room, though they often get but four.

Evergreens of the better kind, and especially specimens, should be examined, and where there are branches growing out of form, take the tops off, or shorten the branches still more than that; take away very weak shoots also, and give air, light and sun, by removing wood when it is too crowded.

Gladiolus merely require to be kept clear of weeds, the earth loosened a little, and watered in very dry weather.

Hyacinths.—If the foliage has turned yellow, take them up carefully, dry them properly, remove the offsets for early planting. While the large bulbs are for disposal in the best beds at the proper season, some of the late ones will not perhaps be ready till next month; shade these from the sun to prolong the bloom.

Hollyhock.—If these are in exposed situations they will require stakes like the Dahlia, but if well sheltered they will need no support.

Iris.—The perennial Irises in all their variety, we mean those

with tuberous roots, should be kept clear of weeds, and the earth loosened round their patches; the bulbous kind should have their beds watered if the weather be very dry, and be shaded when they show colour.

Lily.—The large flowering sorts in pots should be sheltered; although not tender, they would suffer from wind and rain, but their proper place is the cold pit. The hardy sorts in the borders require no care whatever; seedlings of all kinds should be kept clean.

Lupinus polyphyllus.—There is scarcely a family more numerous than the Lupine, from *Lupinus nanus* to *Lupinus Cruikshankii.* They are of all sizes and colours, but the most superb is *Lupinus polyphyllus*, which has a splendid spike, and is worthy of all praise; nor is it the less acceptable on account of the many shades of colour which distinguish it from more common ones, nor for being a very hardy perennial. We consider it so necessary an appendage to the border, that we recommend sowing a few seeds for the sake of possessing whatever new varieties may come, and enabling you to throw away any that are worse than the original.

Mimulus seed may be sown the first of the month, in clumps, at the foot of trees, or in beds allotted to it, where they may flower without any care or trouble. They are very brilliant when in bloom. Plant out those sown early in pots, they will be a month earlier in flower.

Pæony.—These plants are for the most part showing their bloom. Some of the varieties want support, others grow down to the ground and provide the support for themselves. There is hardly a more striking plant than a Pæony in full bloom. The tree Pæony is not so good in the flower as some of the herbaceous kinds, but it is a noble plant notwithstanding.

Pansy.—Now in perfection. Shade particular flowers, but not whole beds. Take off cuttings, or, which is better, side-shoots, and strike them under hand-glasses in the common border.

Paths.—The first part of the month pick up and turn all gravel walks. Begin this by chopping up all the weeds and clearing the surface, then with a common pick loosen the gravel from end to end, with a spade turn the clean side to the top and the dirty side to the bottom; and if the walk be too thinly gravelled to do this, take the rake to it after it is loosened, and merely freshen it up a little. Let it be well rolled afterwards, and keep it rolled after rains, as indeed all gravel walks should be, whether disturbed or not.

Petunias.—If a collection of these are grown, and you have among them any of those weakly varieties which will not support themselves, you must resort to sticks; it is a most untidy flower, and is almost a trellis plant; nor is it long pretty, even as a border flower, though it keeps in bloom a considerable time. Now is the period the weakly ones require sticks, and those which are to be turned out in the borders require topping. Those in pots should be trained after some fashion, or they will hang over their pots, and be hardly endurable.

The plain varieties are hardly worth growing, but there are some which, from their habits, which are shrubby, and others for their colours, which are curiously striped or spotted, may be grown for pots. All those plants whose pots are filled with roots must be shifted, and the soil may be the same as for Fuchsias. Those to be turned out need no shifting, because by the end of the month they may be planted out.

Phlox.—All the perennial kinds merely want looking to with a view of providing sticks for the tall ones as they grow up. The *Phlox Drummondii*, which, strictly speaking, is an annual, may be perpetuated by constantly making cuttings. Those saved through the winter may be planted out in the borders, or be potted to bloom that way. The difficulty of obtaining seed to be depended on, renders it desirable to treat this plant as a perennial. Taking cuttings from it several times, and depending only upon them, enables the cultivator to choose his own plants from the first lot of seedlings he grows. We recommend seed to be sown and saved from the best every year, but cuttings to be taken from all that are remarkably good, until a sufficient number of varieties are secured of the better kind. This may be sown at once in the open border.

Pinks.—By the end of the month you may reduce the flower stems to one on each plant. Top-dress, if not done already, with decomposed cow-dung. Water in dry weather. Keep clear of weeds.

Polyanthus.—Part them carefully, so that a heart may have a piece of root, and plant out in good strong loamy soil, and in a situation not reached by the mid-day sun. Sow seed in large pots, and keep it in frames.

Primroses.—The double white, double crimson, and purple, having now passed their flowering, let them be parted like the Polyanthus, every heart with a bit of good root to it, and be planted out six inches apart, to grow into strength again.

Ranunculus.—Stir the earth between the rows; water effectually when you water at all. The autumn planted now in bloom may require watering and shading too, to preserve their colours and prolong the flowering.

Rhododendrons.—Those which have been protected are for the most part in bloom, or have passed their flowering. The bunches of decayed flower and seed-pods should be removed instantly, for the swelling of the seed-pods detracts greatly from the growth, so much so that it is a very common thing for the plants left with their seed on, to fail altogether to produce bloom for the next year. Therefore as soon as the bloom has begun to fade, take off the bunch of seed-pods, and continue this. If there be any disposition to grow out of form, prune in a very long branch before the growth begins; but those plants which have been unprotected have not bloomed yet.

Scarlet Lychnis.—This is one of the most brilliant, perhaps, of the perennials. A tall plant, three feet and upwards, with a head of fiery scarlet flowers, grown in masses, could not be surpassed easily by anything else we have in the garden. Loosen the earth

round the plants, and provide some kind of support. Generally three moderate sticks, about eighteen inches high, placed at angles, and a piece of bass matting, will be sufficient to hold a mass of six to a dozen shoots. But a patch ought not to be allowed to get so large, except where the borders are very wide.

Shrubberies and Lawns.—Mow not less than once a week, if it can be done, but if it goes more than a fortnight this month, the grass will be spoiled for the year. Water late planted shrubs.

Transplanting all the annuals, potting off such as are to be bloomed in pots, filling up the beds and clumps with Hydrangea, scarlet Geraniums, Fuchsias, Verbenas, Petunias, Calceolarias, and other subjects which have been protected all the winter, may be set about after the fifteenth of the month without fear of having them damaged by frosts.

Tulips are now coming into flower. Keep the sun from once shining on them after they show colour. Make memorandums in your book on the state of your blooms, especially pointing out any that are to be changed the next planting, and all such as are in their wrong places. If the weather be exceeding sultry, water the paths in the tulip house, but not the soil in which the tulips are planted. They do not require wet, but the paths well watered. Keep the canvass house cool, and when the weather shall prove very melting, syringing the canvass all over so as to still more cool the place will be beneficial; but the under cloth stretched from end to end must be put up before you sprinkle the roof, or the water would splash through the cloth into the flowers, and completely spoil the bloom. Look over all your seedlings as they flower, that you may throw away at once all those which prove worthless, and so lessen the stock. Shade any particular flowers that may be about in the out-beds and seedling beds.

The *borders* generally have to be kept clear from weeds, to be filled in the vacant places with seeds or plants ready to put out. Stakes put to all sorts of plants that are weakly in their stems, or too tall to stand the winds. In filling up the borders, all the taller subjects should be placed at the back, and the lower ones towards the front, as all borders should form a kind of bank of flowers when all are in flower.

Geometrical or Dutch gardens.—One of the first things to consider in Dutch gardens, is permanency of bloom. On this account there are many kinds of dwarf roses that are excellent, but all the beds should be uniform, that is to say, the beds that are all of one shape should be all of one colour, or half of them at any rate. Suppose, then, there are six round beds on the same circle; it would be tolerable to have three scarlet and three blue, they being alternate, and so with all the rest. Of the annuals to be employed, *Nemophila insignis* and Convolvulus minor would be splendid blues; *Zinnia coccinea* and scarlet Ten-weeks stocks, good reds; *Erysimum Perofskianum* and *Eschscholtzia crocea*, good orange colours; Candytuft, a good white. But the objection to annuals is their short-

lived beauty. Verbenas of various colours, and roses, go a long way towards making up beds that retain their beauty all the summer and a great part of the autumn. All we want to impress on the mind, is the necessity of uniformity in the plants employed. The *Cuphea platycentra* is also a prize for bedding out.

THE ROSE GARDEN.

This noble plant is now advancing in growth and approaching the period of bloom. Syringing with a strong but fine stream through small holes all that may be attacked with the green fly, and especially those on walls and the fronts of houses, will be found beneficial. Look over the grafted and budded trees of last year, and remove all growths of the stock, whether suckers from the root, or shoots from above and below the graft or bud; the only exceptions are those of which the graft or bud has failed, and in such cases let the strongest shoot of the stock, alone, grow to be budded again. Roses in pots must be examined to see if they have enough room. Observe that the moss is not removed from the pots of seed not yet up, and that the moss is damp and the soil moist.

THE GREENHOUSE.

Azalea indica should now be kept in the shade, and if there be no permanent shade to the greenhouse, a temporary one should be placed in some portion of it. No plant sooner yields to the influence of the burning sun, nor exhibits signs of distress so rapidly if neglected. All the kinds are alike in this respect, they should therefore be carefully watered, have plenty of air, and be kept out of the sun in the coolest part of the greenhouse.

Botany Bay Plants, by which we mean Acacias, Hoveas, and all hard-wooded plants of the same nature, though from other localities, have bloomed, or are about blooming. Such as have flowered are beginning to make their growth, and now is the time to prune all such, before they advance too far. Where the branches are luxuriant and growing out of shape they must be shortened. All that are too long among the lateral shoots must be cut in, so as to favour handsome growth; and in pruning them we ought to consider that the object of a little height or size is nothing compared with good form; hence if they are gawky and bare, we should sacrifice a good deal of the present size, that we may ultimately improve the form of the plant. We ought also to examine them before we leave them to their growth, to see that they have good drainage and pot room, and if not, we ought to re-pot them in pots a size larger. When all this is done, let them be placed in the coolest and lightest part of the greenhouse, and be turned round every day, otherwise they will grow one-sided. Let them be freely watered. These plants should always be grown in peat mould two-thirds, and loam from rotted turves one third, and without dung. Those plants which have not bloomed must be well supplied with water, as a plant coming into flower absorbs a good deal. All growing plants require plenty of light, plenty of air,

plenty of water; and if the sun be very burning, which it frequently is this month, let there be a shade during two or three of the hottest hours of the day.

Calceolarias.—These require a good deal of water as they rise for bloom, and to prevent their being drawn up too much so as to weaken their stems, they must have plenty of light and air. Observe, too, that the drainage of all is clear, which may be easily seen if you examine before watering. If any one is moist at that time while the others are dry, turn out the ball, and put new crocks into the bottom, removing all the old ones.

Camellia japonica.—These are now making their growth, and should be examined to see that they are not rambling out of shape. The pruning of the Camellia is a subject on which few growers for sale agree with us; they should, however, be as carefully pruned as a wall tree. Shoots coming in places where they are not wanted ought to be taken off, branches that are too long should be cut back; regard should be had to beauty and not to size. The grower for beauty does not care for wood except where it is wanted, and therefore the instant the bloom is gone he should cut the plant into a form that will, with one year's wood on it, become handsome, and though he may lose half the plant by the operation, he will be pleased with the result, however great the sacrifice may be. They will grow the better if placed near the light, being shaded, while the young wood is tender, during the hottest hours of the day, if the sun be too powerful; and they should not on any account suffer a check while growing. Many place them in the stove or a warm greenhouse, but they are infinitely better without artificial heat. They should be turned every two or three days, to prevent their growing one-sided.

Chinese Primroses.—We are not sufficiently interested in the single kinds to think them worth growing from seed, but there are some worth perpetuating, such as the double ones, and remarkably large single ones. Shake the earth all out of the roots, separate the hearts, so as to get a good root with each, and pot them in the sized pot best adapted for their roots, without regard to the head, which will soon spread.

Cinerarias.—These are now in perfection, except seedlings, many of which bloom later. They require plenty of air and water, and their flowers may be shaded from the hot sun. Seedlings in smaller pots than they are to bloom in should be shifted when the pots are full of roots, and be well watered. They will grow double the size that they would acquire if starved, and you can hardly judge a flower that has been starved.

Climbing Plants.—The rapid growth of climbers renders constant attention necessary. The principal object is to guide the young shoots daily, and fasten them in their places as they advance, for if this be not done, the leaves all turn according to the position in which the growing shoots hang or lay; and when after they have been neglected you begin to train them, the leaves are twisted out of their places, and the plant requires a long time to recover a good appearance. The

necessity of constant watching will be observed the very first time they are neglected a few days in their growing season. Those which are meant to cover any given space should be occasionally stopped when more lateral branches are required.

Erica.—This beautiful family should always occupy the coldest place in the Greenhouse, or a cold pit; all artificial heat is injurious. Twenty-four hours' neglect of watering after they want it, will either quite kill or greatly damage a plant, because the leaves of the lower part would fall as if they were deciduous, or whole limbs would die back. Examine every plant, therefore, daily; give plenty of air, and carefully observe the drainage; too much water would be just as dangerous, just as mischievous. The changing of pots to larger sizes should take place after bloom, and before the new growth. The soil should be two-thirds turfy peat, and the other third of loam from rotted turves (which is half vegetable manure), or made up by maiden loam which has no manure, and decomposed horse or cow-dung to make up for the absence of it; the proper peat earth is that which is very full of sand. Too much attention cannot be paid to the watering and giving plenty of air. The heath luxuriates in a good warm wind.

Fuchsias.—According to our mode of culture these plants will be now in full growth, requiring only plenty of air, plenty of water, and turning every day to make the growth uniform all round. Avoid all artificial heat, keep them as cool as any part of the greenhouse can be kept, and if the pots are full of roots, change them for a size larger. If there be a disposition to make long shoots, stop them by pinching off the ends; but if you have neglected this till they have gone too long, cut them actually back a joint or two. Those of pendulous habit, like the old Globosa, should be stopped early, until there are enough branches to hang over all round; pyramidal plants of more than a year old should be checked wherever the lateral branches get out of place. Cuttings may be taken at any time of the year, and seed may be sown now in pans or pots, and placed in the warmest part of the house till they germinate. Seedlings that have filled their pots with roots may be placed in others of larger size; the soil best adapted for them is peat earth and loam from rotted turves, half of each, without manure.

Geraniums.—These are now showing their blooms, or bloom buds, and as the flowers will easily burn in the very hot bright sun, shading is indispensable, but it should be done only while the sun shines. It should be so contrived as to be easily removed and replaced. A shade on a roller, that can be pulled down or up inside the glass, without preventing the glasses from being opened, is the best, because the full air can be given without difficulty. The geranium is too often drawn up by heat without light, whereas the light without heat is every way efficacious. They will require great watchfulness as to supplying water, and in killing the green fly by fumigation the instant it appears. They should be placed as near the glass as possible.

JUNE.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Anemones, where the leaves have turned a little yellow, may be taken up, dried, and stored like Ranunculuses, except that as the tubers are larger and hold more moisture, you will require a longer time to dry them. Those in bloom may be shaded, to prolong the flowering.

Annual flowers that have been sown in the border in patches require regulating; that is, they want thinning out so as to leave only three or four plants of some large kinds, and half a dozen small kinds in a patch, because, if they are too thick they injure each other, and the plants grow straggling and weak. Annuals that require planting out should be put out early this month if not done last month; and in the middle or towards the end of the month, as a succession to those already in. Last month and this may be greatly assimilated on these matters, because by following up the same operations the bloom of Annuals is greatly prolonged.

Auriculas, which are now enjoying all the weather, must be looked to now and then, to see that the drainage is quite clear, for the soil will frequently wash down and fill up the hole. They must always be cleared immediately. Pick off all yellow leaves, earth up those which have offsets, so that the base of the offset may be in the ground or soil, as offsets are much safer and make plants sooner if they strike root before they are taken off. Seedling Auriculas may be potted off singly in small pots as soon as they have six good leaves, but they are better in frames than altogether exposed at first, because their moisture can be better regulated and their shading can be adapted to their state of strength. Smaller seedlings may be pricked out from the seed-pans, and put six or more in a pot of the smallest size, or in a pan an inch apart all over; but those which touch the edge of a pot always advance faster than those in the middle, so that most prefer to put only as many as can be put round the edge. Watch the seed-pods of all that are being grown for seed; they must be gathered before they open, or the seed will be lost.

Balsams require the same treatment as before; but as they grow up tall they must be sunk lower in the bed. If properly provided for, they should go into a warm pit, where they can have plenty of light and heat, and be easily got at to shift from one sized pot to another. Balsams may be planted

out in the common borders; they look best put out three in a patch, because as they are of different colours they form a better contrast; they will be a good succession to any planted out before, or if they have been advanced much in pots they will very likely flower before them; but at any rate will form two seasons.

Cockscombs.—Shift from small pots to larger ones every time the smaller ones fill with roots, and keep up the heat of the hot-bed by means of fresh linings, keeping the soil moist and the plants near the glass, for they will depend more upon the continuance of heat and proper moisture for their beauty and fine growth, than any one imagines, unless he has grown them.

Cuttings.—Before any of the plants intended for bedding out are planted, all the long gawky shoots and all spare pieces should be taken off; first, that the plants put out should be pretty uniform; secondly, that the cuttings may be struck for late planting. At this time of year they may be put in the common border in the shade, under a hand-glass, and they will strike freely. All rooted cuttings in pans or pots should be potted off into single pots.

Dahlias.—The further planting of Dahlias should be completed this month. Many plant the middle of May, the first week in June and the last week; that is, for the sake of having three distinct seasons to calculate on for the exhibitions. Fasten them rather loosely to the stakes, and above all things examine frequently the tops for earwigs, and destroy them as fast as you can. If you persevere in this matter, you will have cleared them by the time that other people begin to catch them; for, strange as it may seem, the growers generally do not trouble their heads about earwigs, until they have had all the season to breed in and the flowers are about to appear. Hardly any amount of assiduity is equal to their destruction, unless begun from the instant they are planted out. Be in no hurry to commence watering the Dahlia. When they are planted, soak the whole ground well, but let them seek their own by going down after it before you water again, unless the soil is very light and not very rich, in which case you must supply water as a substitute,—but a poor one,—for the nourishment the ground ought to contain in itself. They will, in all probability, be attacked by the green fly, and perhaps by a little green caterpillar or grub; for the first, syringe pretty sharply with a fine rose, but considerable force, and thus wash them off; but if this does not clear them in one or two syringings, let it be done with tobacco-water one day and clear water afterwards. For the grub there is no remedy but examining the plants, and picking them off.

Hyacinths, Tulips, and other bulbs, which have done flowering, and the foliage of which has begun to turn yellow and decay, should be taken up, and after drying in the shade, cleared of their roots and leaves, and packed away where the air can get at them, but no sun nor damp. At the end of the month the best tulip-bed may have begun to show symptoms of

decay; as soon as the top of the stem shrivels they may be taken up and the stems cut off, but not cleared of their mould. They may be laid in their boxes dirty as they are, to be cleaned after they have thoroughly dried in the shade. Those in the out-beds may also be taken up as soon as their stems turn yellow at top; but all those which have seed-pods will not have begun to decay, and when seed is wanted they must be left until the pods swell the full size, and begin to turn brown.

Pansies.—Shade the individual blooms that are wanted from the heat of the sun, but the bed must not be confined, for it would draw the plants; or if the bed must be shaded, let it be by a side wall of matting, and not a complete cover. Take off the small side shoots from all the plants you wish to propagate, and constantly set them to strike. New beds ought to be made two or three times a year, besides the original autumn made ones; the side shoots strike rapidly under a hand-glass even in the common border, and a trifle of bottom heat will hasten the striking. You may make another bed of struck cuttings any time this month, and those plants that have bloomed and declined may be cut down to break out anew, or be pulled to pieces to propagate generally.

Perennials and Biennials.—If they are large enough to plant out towards the end of the month, let them be turned out about as distant from each other as the plants occupy when grown. Canterbury-bells, Wall-flowers, Sweet Williams, Columbines, Lupins, and such like, may be nine inches; Polyanthuses, and such like close growing subjects may be six inches. Let them be in beds about four feet wide, and alleys between of one foot.

Picotees and Carnations require the greatest attention, not less to their general health than their freedom from vermin. If there be the least symptoms of the green-fly they should be fumigated, if you have a room to shut them in; and if not, they should be washed and syringed, first with tobacco-water and next with clear water; for if once the green-fly prevails, the plants will be weakened and the bloom greatly impaired. As their stems rise they should be tied to the stakes, but sufficiently loose to allow them to grow. They will frequently lengthen so much, that if the tie stops them above, the stem will grow out and break; the early ties ought to slip up the stakes readily, as the stems lengthen. Of course, if there be more than one stem to a plant, the weaker is to be removed. Only one stem should be left, and not more than two or three buds on the stem, unless it be on some of the very large and full kinds, which would grow too strong if limited in number.

Pinks are now rapidly sending up their bloom stems, and although many persons will leave on more than one stem to a plant, we cannot recommend it. There are some large Pinks that will be more tractable if they are allowed to retain all their buds, because their great fault is being too double and too large; but these are the exceptions, and are soon found out. In a general way, reduce the buds to two or three.

The tying of the buds round the middle with a bit of bass matting must be managed when the bud has grown as large as it will swell before bursting, because the confinement then damages nothing; the calyx is to be torn down to the tie all round the bud, at each division. In blooming the Pink the guard leaves should be guided down to their places, not pulled out, but merely drawn down so as to form a dish, as it were, for the other petals. They must be handled very lightly, for they easily bruise, and when once damaged, however slightly, they do not recover again. Many florists use a piece of round card, which they put on, and bring up to the under part of the flower, to keep up the guard or under petals, and they put a glass over the flower, and a shade on the glass, in the heat of the summer days, for it is necessary to keep out the heat from the flower. The grass at the bottom of the Pink may be thinned off, and the pieces struck or piped, as it is called; they are to be cut up to a joint, the bottom leaves taken away full an inch high up the stem; the leaves are not to be shortened. Now make up a bed of rich light soil, and saturate it with water, putting the pipings in within an inch of each other, in a square place that a hand-glass will just cover, and having given a little water to settle the earth about the stems, cover them up; they will require no other attendance till they strike, unless it be a little water if the earth gets too dry.

Ranunculuses for exhibition must now be shaded and well watered; but to be effective, the shading should be at a distance. Upright poles or stakes, and a mat wall so placed as to shade the flowers effectually, all but an hour in the morning, and as much evening sun, is the best way of doing it without drawing the flowers or making them weakly. The colours are injured by covering. They want the light and air as free as they can be given without sun. The autumn-planted Ranunculuses, which have begun to turn yellow, should be taken up. They frequently suffer from vermin when left in the ground too long. We have no business to wait till the foliage decays; when it begins to turn yellow, the plant has done all it can, and the sooner the tubers are up and dried in the shade the better. They should be placed to dry under cover, where there is plenty of air, but no sun; and when thoroughly dry, put away in a very dry place, where they can be easily examined now and then, to see that they do not acquire any damp.

Seed-pods.—If these are to be saved, let them be watched and gathered as they approach the ripening season; but if seed be not wanted, every decaying flower should be removed before the seed-pods swell, for nothing so completely destroys the flowers of anything as allowing the pods of seed to swell instead of removing them. Let one patch of Sweet Peas be allowed to bloom, and not a flower to be cut, and let another have every flower cut off the instant it begins to fade; and those which are allowed to seed will be completely out of flower and full of the seed-pods, while the other con-

tinues to grow and bloom for weeks afterwards. It is the same with all flowers.

Tender Plants.—Finish planting out all the ordinary tender border flowers, and also Geraniums, Heliotropes, Verbenas, and Hydrangeas. Balsams should be planted out three in a patch, within six inches of each other, in a sort of triangle; they will grow into one another, and being different have a good effect. Geraniums should be planted singly, turning the balls out whole, and allowing room to grow. The Geraniums planted out in beds and clumps should be a foot apart, for they will grow close enough very soon. All this planting should be done the first week.

Watering is frequently necessary this month, but it ought only to be resorted to in the greatest emergency. Unless things are perceptibly suffering for want of it, it ought not to be given: it is the beginning of bad habits. Plants, like people, may be spoiled; help them, and they will not help themselves; teach them self-reliance, and they make shift without assistance. If we begin watering plants, the roots no longer go down after moisture, they come up after it, and we are obliged to continue it; but if we are obliged to water, let the whole space of the ground be watered alike, the same as a heavy shower of rain would do it. Common surface watering is worse than none. The farce of sprinkling ground that it may look black and wet for an hour, is amusing enough to those who know better; but, as we have always said, a thorough good watering once a week is far better than the common sprinkling of the place once a day.

Weeding.—Unless the greatest activity is observed now in the removal of weeds, they will rapidly overrun the flowers, and seed before you are aware of it; make a rule of stirring the entire surface of the borders in dry weather once a week at the least; it is the only way to keep weeds effectually under control. Weeds that grow up in patches of seed should be drawn out by the hand; but before that is attempted, the ground should be well soaked with water, that they may not only draw easy, but come out without dragging the plants with them. The beds of seedling biennials must be carefully gone over, and should be thinned a little as well as weeded, for this purpose water them well first; merely remove those which are too thick to grow well enough to plant out, for if they are too thick in the seed-bed they become lanky and weak, and there is no making them into good bushy plants.

THE ROSE GARDEN.

Look over all the tree roses, and all others worked upon briers, and wherever the stock has begun to shoot, rub off the buds and shoots, that they may not rob the better variety that is budded or grafted upon them. Cut away all the stock above the inserted buds. If the bud has made a good shoot, pinch the end off, that the growth may at once be thrown into lateral shoots, instead of all going into a branch that must be cut back to two eyes next season. It is far better to direct the strength into lateral branches that will at once form a

good head, because each of the strongest of these branches being cut back at the pruning time will help to form a good head, by sending out two stronger shoots. Look also to suckers that spread in the ground, and if they throw up strong shoots to injure the plant, dig down to the part where these suckers join the main root, and cut them off there. If any of the briers worked last year do not grow well, or rather if the buds or grafts are not growing, let the stock grow, that you may have the branches, for the sake of budding them again in July. Examine the shoots of the Rose, to see if there be any grubs, for they must be picked off; and if there be any symptoms of the aphis or green-fly, syringe with tobacco-water first, and a few hours after with clear water to wash off the tobacco. The dwarf Roses growing on their own roots, that is to say, those which have not been worked, but grown from layers or cuttings, are equally susceptible of attack from grub and fly, and must not be neglected on any account. In the beds and clumps of dwarf Roses it may be necessary to stir the earth between the plants, and to peg down the branches, that they may spread and cover the beds.

Budding.—Towards the end of the month circumstances may occur that make it desirable to bud a few; for instance, you may get a few buds that you might not be able to get afterwards. In this case select the strongest shoots on the best stocks. Shave off the bud and leaf with a little thin slice of the wood and bark, with a fine pointed knife; lift out the woody part of the slice, which will leave the bark only on the buds; then make a slit an inch long in the bark of the stock, as close to the stem of the stock as you can well get at it, and then a cross slit halfway, so that with the thin handle of the budding-knife, or a thin piece of wood, you can lift the bark by tucking it under, so as to tuck the piece of bark which has the bud on it under the bark of the stock, and tie it there with a piece of worsted or bass matting, where it may remain. Cut away some of the branch of the stock, but not all, because you want some growth to draw the sap.

Climbing Roses.—It will be necessary to pay the same attention to these in respect to vermin; but the syringe must be the principal dependance for eradicating them, and from day to day it may be desirable to wash them with considerable force. As the fly and grub are washed to the ground, it will be requisite to rake the surface, and clear them away, that they may not again climb the plants. If the shoots come too thick, or the plants are making fresh growth from the bottom, the most vigorous shoots must be removed, that the strength may go into the established plant, unless it happen, as it will sometimes, that the old plant is unhealthy, in which case new and vigorous shoots from the bottom may be encouraged, and parts of the old plant cut away to make room for them.

Seedling Roses must be weeded and kept clean, especially the smaller plants, which would soon be overrun and damaged, if not destroyed. The pans of seedlings coming forward, but small, must be also kept clean; and if they are

too thick they may be carefully thinned, and the plants withdrawn may be pricked out into other pans or pots, two inches apart; but unless these be carefully drawn without injuring the roots they will not recover the change. They must be placed in the shade in a cold frame, or out of doors.

Stocks for Budding.—These must be looked over, and all but the two or three strong shoots near the top continually rubbed off as they appear, because the more strength there is thrown into the shoots that are to be worked the easier they will be worked.

THE GREENHOUSE.

Azalea indica and Camellias.—The plants of Camellia and Azalea are making great advances. If all these plants could be placed under canvass, so much the better, but deep cool pits, which can be covered over and shaded with mats, would do just as well; they must not have the burning sun, for it would damage the young shoots and curl their leaves, spoiling them for a season altogether. Give plenty of air all the day through; plants can hardly have too much. The plants still in bloom, or coming into flower, will now have more room, and should be placed a good distance apart.

Botany Bay Plants.—Many of what are called the hard-wooded plants, such as Acacias, Hoveas, Heaths, Chorozemas, Epacrises, and Botany Bay plants generally, may be now declining flower; put them out in a shady border, where they are sheltered from the high winds and free from drippings of trees, to make their new growth; but as before, see whether the shape of the plant can be improved by cutting in.

Calceolarias. — The plants in flower must be kept well watered and shaded. Those going out of bloom should have the decaying flower-stalks cut off, and should be set out of doors in a cool, airy, but not too shady situation, where they will gradually renew their growth previous to propagation. Any later plants coming forward for bloom must not, on any account, have any check for want of water.

Cinerarias.—As these plants go out of flower they require similar treatment to the Calceolaria, in order to induce the old stools to throw out shoots for the purpose of propagation. As soon as any suckers or shoots from the base of the plant are produced, let a portion of them be divided for a supply of the earliest flowering plants. They generally divide readily with roots attached. The young plants should be grown on in cool frames during the summer, so that they may be shaded in hot parching weather.

It is a good plan to plant out some of the old plants in rich soil, to furnish a quantity of suckers for propagation.

Cleanliness and Order. — Pick off from the plants all dead leaves, and keep the house clean. On no account allow dead leaves to lie about on shelves or in pits; they engender damps, which are fatal to plants in the vicinity. Pits should be kept especially clean and dry. It is of the greatest benefit to plants to keep shelves and tables clean; they should be frequently washed, and wiped dry

afterwards. It dislodges vermin, and the eggs of vermin.

Climbing Plants.—At this season the growth of climbers is very rapid, and unless it is closely attended to, soon gets into confusion. The young shoots should therefore be arranged on the trellises or supports before they are too far advanced.

Cuttings under glasses must never be allowed to get dry, but on the other hand the glasses ought to be wiped daily quite dry, or the cuttings are apt to damp off and rot. Many plants root easier when the cuttings are struck in sand, with the bottoms just touching the ordinary soil, but not entering into it; hundreds of plants do not require it, but it certainly facilitates the striking of every thing, whether it be required or not; every time it is watered the sand washes down close to the stems.

Ericas. — The Ericas coming into flower ought not to have the burning sun on them, and being in peat, which is little more than a vehicle for supplying water to the roots, and affords little nourishment of itself, they ought to be examined twice a day, to see that they are sufficiently moist.

Foreign Seeds.—Sow seeds of foreign plants the instant you get them, without considering the season, because many seeds will germinate at the time you get them that would be quite perished if you waited for a proper season, and all seeds grow best while new.

Fuchsias. — Fuchsias must be regulated as to form as they advance; and those wanted to be bushy, must have their shoots stopped by pinching the ends out.

Geraniums.—The Geraniums in the greenhouse should be shaded, for the flowers are soon gone if they have all the sun. Seedling Geraniums may be pricked out from the seed-pans to small pots, three or four in a pot, planted round the edges only; seedlings in pots must be shifted as fast as they fill the old pots with roots.

Insects.—Plants should be frequently examined, to see if there be bugs or scale about them; they soon become unhealthy unless they are instantly cleaned; wash with soap and water, and afterwards with clean water.

Seedling Hard-wooded Plants.—Seedling greenhouse plants should be kept clear of weeds, and as they get large enough to be handled, well pricked out in pots, as Geraniums.

Specimen Plants.—Young specimens of greenhouse plants must be stopped or otherwise, as they are required dwarf or pyramidal.

Syringing occasionally does most plants good, but it should be done in the morning, that it may not create a general damp throughout the house. All the heat of the day the house should be open as much as possible; opening doors at each end creates a draught which is not healthy; but to open all the top and front windows is advisable at all times in hot weather.

Watering.—Watering is now a complete business; the plants must not all undergo the operation whether they require it or not, but must be regularly examined; some will be found dry and wanting moisture, others will be found moist enough, and ought not to have more till they are dry by comparison.

JULY.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Anemones as they die off should be taken up, and their tubers dried in the shade, where there is free access of air and light, and when thoroughly dry be packed up in thin bags and boxes. Gauze or open canvass bags are always better than paper.

Antirrhinums require support sometimes. Look over the seedlings as they come into flower, and select such as have good properties.

Annuals.—Late ones may be planted out at the beginning of the month. Weed those in beds and clumps, and draw some out if they are too thick. Sweet peas must have good supports. Stir the earth of the borders, to clear the weeds. Annuals in pots, we mean of the ordinary kind, should be placed in the open air, rather shaded, and be copiously watered.

Auriculas. — These must be shaded from the heat of the sun, if they are not already placed in the shade. Examine whether any of the draining is stopped, and remedy it if it be so. Take off dead and yellow leaves, and if they are too wet let them be occasionally covered against rain. Prick out any seedlings that may be large enough round the edges of pots, an inch apart.

Balsams. — Continue shifting the pots as they fill with roots, and keep them near the glass, with a good share of air during the heat of the day. Put out in the borders all that you do not mean to bloom in pots.

Biennials may be planted out in beds if not done before, and where the places are at liberty, any of them may be planted at once where they are to bloom.

Bulbs of whatever sort that are left in the ground and require taking up, should be attended to the first week. It often happens that tulips are not ready till this month, or that the weather has not been favourable for the job; but no time must now be lost.

Campanula.—The variety commonly known as the Chimney Campanula is now growing fast in the blooming-pot. Fasten the rising stems to proper supports; as they advance water well, and keep the pots clear of weeds.

Carnations and Picotees.—These must be disbudded. Leave no more than two or three buds on each stem, and let these be the buds nearest the season you want. If the carnations and picotees are too forward, we are glad to get rid of even the crown bloom bud, but it ought not to be done lightly, because in most cases they are the finest, though if taken off before

they begin to swell, the second takes its place. Tie the stems carefully to the stakes; as they grow up they must be able to push the tie up with them, or they might damage. See that no vermin infest them, and be liberal of the water. When the pods have swelled full, tie a piece of matting round the middle, and as soon as it will allow of the operation, tear down the green covering or calyx all round to the band; the green will divide in five, and easily come down; this enables the petals to open all round alike, whereas if the green were not torn down in all five divisions, they would have burst on one side first, and nothing afterwards could make it even. Put a round card on the pod half way up it, close to the tie, and the petals may be placed in their proper situations: the large formed petals first brought down to form a circular dish, as it were; those of the next size may be brought down to cover the places where the others lap over; and a third row, rather smaller, may be set again upon these; whatever else is left may form a crown, which with the horned pistil is a good finish. To get the card on, a slit is made from the side to the hole in the centre.

Chrysanthemums. — Strike the last tops to form dwarf plants. A little bottom-heat would be desirable, as they do not strike so free this month as last or the month before, but as they have grown near their full length, they have not much further to grow without flowering. As soon as they are struck, pot them in forty-eight sized pots.

Climbing plants, such as honeysuckle, clematis, and others requiring support, should be often looked at, and their new growth that is loose properly fastened as the shoots advance. Climbing roses want constant watching.

Cockscombs. — Give plenty of nourishment and heat, re-pot as soon as the roots reach the side, give occasionally liquid manure when the pots are getting pretty full of roots, keep the heat up to sixty-five or seventy, and keep them close to the glass.

Dahlias. — These are getting rapidly forward, requiring one man's time to fasten out the branches, clear them of useless growth, pull off all their imperfect buds, catch the earwigs, and give water, although as before we would rather they had one good watering all over the ground once a-week than a moderate or partial one once a-day; besides, when the waterings are further apart, there is the better chance of a shower of rain relieving us from the trouble. As the blooms come out, you have to make up your mind whether you will grow them naturally or artificially, that is, whether you will cover them up, or let them take their chance. If you intend to pot them, get square boards as large as will hold a thirty-two sized flower-pot; let there be holes at the corners or at two corners, to hold legs that shall support them the height of a flower, whether it be at the bottom or half-way up. A slit sawn in this board so as to reach the centre, enables you to pass the stem of a bud to the centre of the board, and this slit may be stuffed full of moss or cotton, by which

the stem is kept in its place, and the crack will let nothing through. This is supported by its feet level and the right height, by thrusting the sticks more or less into the ground, or cutting them to a proper length, the feet are pointed to go into the two holes. It then forms a level table with the bud through the centre, and when a flower-pot is over it with the hole stopped, it keeps out the vermin. If, however, your dahlias are to ornament the garden, and exhibiting is a second consideration, leave the apparatus for covering alone, and trust to fortune for fine blooms. If you have any that are scarce or dear, take off young cuttings, and strike them in strong bottom-heat.

Evergreens and ornamental trees and shrubs are in full growth. Look well to the growing branches, and see that they are not overgrowing themselves and getting the plant out of shape; check any that are growing out of the way, stir the earth on the surface of the beds. Water the American plants copiously from the moment they are beginning to grow; they are frequently unable to complete their growth for want of ample refreshment. The Rhododendrons, Kalmias, Andromedas, Arbutuses, Magnolias, and such like shrubs, must be watered in dry weather the first season they are planted.

Gladiolus.—Fasten the stems to appropriate supporters, and give them an abundance of water.

Hollyhocks.—Look well to the seedlings, and mark any that are better than we have already got, but throw away all secondary things. Nothing that is perennial should be tolerated as novelties, unless they have real merit about them. The flowers should be very double, the petals very thick, the colour very new, and the spike very compact, to justify our keeping one to propagate; and these novelties of merit are not common.

Irises. — The numerous Irises that bloom from early in the spring till late in the summer should be regularly noticed, and especially the seedling English Iris, which now comprises so many very splendid varieties; and such as are worth cultivation should be taken care of and their principal features noticed, or they should be numbered, and entries of their peculiarities made in a book.

Lily.—The large white, orange, and scarlet Lilies in the borders should be supported by stakes. The Japan lilies in pots should be kept in the shade, for their delicate blooms would soon suffer under a hot sun. The half-hardy Lilies of all kinds form beautiful objects in collection; they require a good deal of water while in pots.

Lupinus polyphyllus and other perennial Lupines.—Seedlings should be planted out in nursery beds, or where they are to stand for bloom, if not done before. In either case they should be well watered, and if the weather be very hot, shaded also; but if they be taken up carefully after watering the seed-bed, and planted out after the sun is down a little low, they will suffer nothing.

Mimulus seedlings must be kept clear of weeds. If you have any worth propagating you may increase it as fast as Verbenas; and planted all about the borders they are most showy and dwarf; and

from a pinch of seed you will have a hundred different varieties.

Pæony.—Most of these plants have lost their bloom, but it is not well to part them until the end of autumn, when their growth is done, although some do it when their bloom is done.

Pansy. — Continue to strike side-shoots and make new beds. Water well in dry weather, shade the individual blooms required to be preserved, stir between young plants. Plant out seedlings, and sow seed as fast as it ripens; but if you have any regard for the quality of your seedlings, mark the best blooms only to save seed from, and sow as soon as you pick it. You can hardly have it at a wrong season, because they will stand the winter, and it is a matter of total indifference whether they flower in spring, Midsummer, or Michaelmas. There is no time of the year in which you may not strike the side-shoots of Pansies, and they make the best plants.

Paths.—The principal enemies to paths are worms and weeds, and they must not be allowed to get ahead, or they will be very troublesome. The worm casts look ugly, and when swept off you are just as sure to find as many the next morning. Lime water makes the path white for a while after drying, but it is the best thing you can use. Fill a good watering-pot, and with a rose water among the casts, for the holes being open and the worms not far below the first thing in the morning, it generally settles all it reaches. The weeds must be hoed up or pulled up, for if the old remedy of salt and water be applied, it runs down to the side of the path, and kills grass or box at once if it be there.

Lawns.—Mow once a fortnight and sweep off the grass directly, for if it lays an hour or two in hot weather it turns the grass under it yellow. Fork up the earth that is open round the specimens, and keep them clear of weeds.

Petunias.—These may be still planted out; they help to fill the borders with flowers. Those first planted out want cutting back or removing; the young ones will very soon flower. Cuttings may be struck under a hand-glass in the border, though heat at bottom rather hastens the striking; but the present planting out will be sufficient for the season. Seedlings may be planted out in beds, that they may be the more easily managed and marked when examined.

Phlox Drummondii as well as *the perennials* may be shifted from small pots to larger, and all that are not required in pots may be turned out in the borders. *Phlox Drummondii* makes an interesting plant well grown, and comes many different colours. Side cuttings when young and struck may be kept through the winter, and thus the annual rendered almost a perennial.

Pinks.—The pipings that have rooted may be planted out in nursery beds as near as three inches in the row and six inches from row to row, but when they have grown strong enough they must be removed to the beds they are to bloom in, at least all the beds you care to grow well and in good colour must be made up and planted in August or September for choice, though many

delay until it is too late to get bloom of any sort.

Polyanthuses.—If these are not already parted, let it be delayed no longer. They should have been parted by the middle of last month, but they may yet make good plants in good ground, with the help of a good autumn. Seedlings not planted out should be got out directly. Primroses should be served the same if not done before, but there is yet time to recover a good plant. We mentioned this and the Polyanthus in May.

Ranunculuses.—Shade the remaining flowers, and water; still keep them clear of weeds. If the leaves turn yellowish by the end of the month, take them up; put them in the shade to dry; when dry, clean them and put them by in gauze or very light canvass bags. Keep all the sorts separate by name or number, and see that none become mixed, for the value is almost gone without the name is preserved.

Rhododendrons must be well watered, seedlings may be planted out. Beds of small plants should be watered in dry weather, and all plants in pots should be in the shade, and their moisture regularly attended to.

Tulips may not have been taken up the first week, and if so, lose no time. When they are up, level the bed, and bring the carnations and picotees under the canvass. They may either occupy the space of the bed, if raised above the path, or if the bed be even with the ground, they may be placed all round. By the end of the month they will be in full flower, and make a noble appearance.

Geometrical Flower Gardens, Beds, &c.—The most effective objects in these beds are the Verbenas or the dwarf scarlet Geraniums, Petunias, and some of the showy annuals. Those beds which have had stocks that are now going off or may go off, should be planted with other subjects between, such as China Asters, French Marygolds, or any other annual that has been taken care of in pots, and that will turn out well—*Phlox Drummondii* and late sown Nemophila, Mimulus, and any other dwarf thing that is forward, planted between any thing that has not quite finished flowering, or by removing what is already there, planted to take their place. The paths will require weeding frequently, and the box-edging attended to.

Seeds of hardy things cannot be sown too soon after they are ripe. Nothing exhibits more healthy growth than a self-sown seedling; and if it be so, how can we do better than sow directly the seed is ripe and gathered?

In planting out seedlings of any kind choose a dull day if you can, and have the beds not more than four feet wide, that you may reach the middle without putting your foot on it. When they are very small, have half-an-inch of sifted stuff on the top, otherwise many of them will perish, because the roughness of the soil may prevent the roots from being pressed solid. When they have got hold well, and rooted down into the coarser stuff, you may stir the soil and mix the fine with the coarse by forking it, because fine stuff runs too close together when the rain comes plentifully, and this is never

favourable to plants. If you cannot get dull weather, plant when the sun has gone low. Water well, and shade in the heat of the day until the plants lay fairly hold of the ground.

THE ROSE GARDEN.

This is now in full beauty. All the sorts of roses of any consequence are now in flower. Take especial care that none of the stakes get loose, and leave the tree to bend to the winds. Now go to budding in good earnest. Take off the shoots from the Roses you want to propagate, tie them in bundles with their names to them, cut back the shoots of the stocks to three or four joints, or so short as will prevent the briers from being inconvenient, and insert the buds close to the heel of the shoot and the main stem on the upper part of the shoot. The piece of thin wood a full half-inch long is to be shaved off the rose branch with a very sharp knife, inserted a full quarter of an inch below the leaf, and brought out as much above it. The small piece of wood that will come out in the bark must be raised up at one end with the point of the knife and drawn out, so as to leave the bark only with the leaf and the bud at its base on it. Now cut a slit three-quarters of an inch long in the bark of the stock, and a cut across it half-way to make a cross section of this slit; lift the bark with the thin end of the budding knife or a thin piece of hard wood, tuck in the bark so that the leaf shall be at where the cut crosses, the bark of the stock lapping over the bark of the bud, bind it firmly but not too tightly, and it is done. By keeping three or four joints of the stock, the sap is drawn past the bud, which soon unites. Look well to all Roses that are worked, and see that all growths from their stocks are destroyed. Rub off all buds and cut off shoots, and grub up suckers from the roots, for they all rob the rose itself of nourishment, and if they once got fairly ahead, would destroy the worked part altogether. Roses in pots must be shifted if they have filled the pots with roots. Keep seedling roses properly shifted if in pots, and well weeded and watered if planted out. Any seedlings that indicate by their foliage that they are novel, may be deprived of a bud or two to put into strong stocks, for they will thereby be hastened into bloom by the vigour of the stock much sooner than they would bloom if left to themselves. Continue to remove all decaying flowers, otherwise they would seed perhaps, and certainly look untidy; removing the seed-pods prolongs the bloom. Let a common China rose be left to itself, and in a few weeks the hips are seen swelling out all over the tree, and the bloom will have disappeared, for as they constantly appear while the new shoots are continued, so they are completely suspended, as it were, when the swelling of the seed-pods arrests the growth. Let another in the same position be deprived of the bloom-stems as fast as the flowers decay, and the growth and bloom will be found continuous.

THE GREENHOUSE.

Azalea indica, having passed their flowering, will be making

their growth, which should be in the greenhouse, with plenty of air and water. Take out any misshapen branch, and stop any very ugly shoots; and if the pots be very full of roots, shift the plants to larger pots with great care, and see that the new soil is solid between the old ball of earth and the pot. On this account very small shifts are objectionable. There ought to be sufficient difference in the size to allow of the earth going down well; and it may be pressed with the finger, or a piece of wood small enough to be clear of the fibres when pressed down against the side of the pot. Struck cuttings may be potted off, small plants shifted to larger pots, other cuttings may be struck as soon as the growth is complete. Cuttings of the last season's wood will always strike freely.

Calceolarias in flower must be shaded to prolong their bloom. Seed may be sown in pans of rich light soil, if not done before.

The Camellias, though removed from the greenhouse to a shady part of the garden, must not be neglected. While their growth continues they require to be watered; but as soon as their shoots are completed, which may be known by the buds at the end forming, they must have no more water than will just keep them from flagging, and have no sun at all. It is one of the best possible contrivances, to have a canvass roof over them, to keep away both wet and sun, but you must then attend to the giving of necessary moisture.

Climbing Plants must be attended to every two or three days, that the growing shoots may be trained to their proper places.

Hard-wooded Plants generally are making rapid progress in completing their season's growth, and are best as much in the shade as may be. Under a canvass roof is better than in the greenhouse, but wherever they are, they must be attended to in the watering.

Ericas require all the air they can have, plenty of light, and great attention should be paid to them twice a day, to see that they get not too dry. Water them effectually when they are to be watered. Nothing is worse than to wet the soil a little way down, and not all through.

Fuchsias must be shaded, but it should be with thin calico, or something that will not take away the light, and they should have abundance of air.

Geraniums out of bloom may be cut down to rather stumpy skeletons, and the cuttings may be put in under a hand-glass in the common border. Shaded merely from the heat of the sun and well watered, they will strike soon. The early plants may be shifted, the earth shook out of their roots, and in re-potting use loam from rotted turves two-thirds, peat one-third, and stand them in the open ground on a hard bottom, but where they may have all the sun. When you cut them back remove the weakly shoots altogether, and only leave short limbs of those you do, in such positions as to form a good foundation of a handsome headed plant.

Greenhouse Rhododendrons which have made their fresh growth should be placed out of doors in the shade, where they have a hard

impervious bottom to stand on, and worms cannot work through into their pots. Those which have not made their growth complete should have abundance of water, air, and light, but not the heat of the sun at mid-day.

Pruning of Flowering Plants.—When a plant is pruned into some sort of form, you may calculate to a nicety how much growth it will make in a season, and if you can keep it in good health the less it grows the better. The principal thing is to form the tree while young, checking its exuberance where it is growing too fast, and encouraging the shoots that are in a right direction; but the time to prune a plant into form is just before it begins to make its season's growth, at which period many plants will bear cutting back to the joint we wish to start, and thereby regulating as near as possible the form for the next season. The greatest error committed in the growth of plants is exciting them too much, and not cutting them back enough.

General Remarks.—The Greenhouse should be kept very clean, all the shelves free from dead leaves and fallen blooms. An occasional washing of the shelves is desirable, for if these and the corners in particular of shelves and ledges be left unwashed long together, they become the receptacle of all kinds of vermin and their eggs. The floor should be kept well brushed out, and if in consequence of cloudy wet weather for some time the house gets damp, light a fire and open the house a little, that the plants that remain in may have plenty of air, while the temperature is raised to dry it. Shift such plants as have filled their pots with roots, to pots a good size larger.

We have noticed at many places that the remedies for the destruction of vermin, or the prevention of their attacks, and indeed for many other things recommended by gardeners, are pretended to be tried and have been said to fail, when it has been entirely the fault of the experimentalist. In one case they obtain the wrong material, in other cases they use a proposed mixture too strong, and sometimes they omit some article or some precaution which they choose to think immaterial, when it is of the highest importance. Occasionally instructions are too indefinite, as where you are instructed to take a pinch of this, a handful of that, or a pennyworth of the other. In one case we find somebody who is to mix soot and saltpetre in given quantities with water of no given quantity, but to the consistency of cream, and dip the roots of plants in it before planting to prevent their clubbing, and who is outrageous because he has killed all his plants. Now the unfortunate operator, we have no doubt, thought of nothing worse than Devonshire cream, which is but one remove from butter itself, and so lost all the advantage of the proper quantity of water. Generally speaking, there are not two articles in use more destructive to vermin in the ground and so nutritious to plants, than soot and saltpetre, but if anything were over-dosed with them, they would be fatal. The soot, however, may not have been pure. At all events, all persons practising from recipes should be certain about quantities.

AUGUST.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Annuals.—If any remain to be turned out, either from seed-beds or from pots, lose no time in putting them in the borders. If any of those in the ground have been sown too thick, or have not been thinned enough, remove enough to give room, and, if they are wanted, transplant those you remove.

Auriculas.—Examine all the plants by turning the balls out of the pots to see if the roots are healthy. If they have become matted round the pot, strike all the earth out of the roots, pare away any little cankery place; and if the bulky part of the root has become long, cut it back to about two inches; this will give room for the same plant to go back to its own pot, or a closer one of the same size, or even a smaller one. The removal of a part of the main stem, as it were, of the root, removes also a great quantity of the fibre that matted together in the pot. Then fill the pot one-fourth with crocks, and the rest with compost; but the quantity put in before the plant is placed in it must be just enough to rest the stump of the root on, and the fibre must be spread round so as to reach the edge; then complete the filling, tucking it down with the fingers, but keeping the plant with its collar, which is where the bottom sound leaf comes from the stem, exactly level with the top edge of the pot; thump the pot two or three times on the potting table or bench while you are filling the compost in, to settle it down a little, and fill within a quarter of an inch of the top edge. It is a common practice to pot all the stock of Auriculas, whether they really want it or not; but if the roots are healthy, and do not mat round the sides, but merely show here and there, they do not want it, and are none the better for being disturbed. Of the proper soil for Auriculas, we have a hundred different receipts by different writers. Those who attend to Auriculas only, and want to excel every body, can afford to try experiments, and use very exciting soil; but the private grower should adhere to that which will keep them in good health without so much watchfulness. The loam from rotted turves, two-thirds, and cow-dung rotted into mould, one-third, with silver sand to lighten it, if it be too stiff, cannot go wrong, and nothing better can be used by private growers who want healthy plants and good colour; the growers for sale want rapid growth and huge trusses; they want small offsets to grow into saleable plants, and use much

more exciting composts. Dickson, for instance, uses good loam and sand for one-third of his compost, half horse and half sheep's dung to form another third, then leaf or vegetable mould and peat, which form another third. Now peat, if really pure, is good for everything in some proportion, and a capital thing to lighten stiff loam; but peat varies more than any other soil; and while from some commons, as Wimbledon, for instance, it is excellent, from many other places it is full of iron, and poisons everything it touches, or nearly so. Now the loam from rotted turves is nearly one-third vegetable mould and one-third woody fibrous matter, partaking a good deal of the nature of peat, and one-third earth itself. If you are obliged to use clear loam without the fibre and turf, one-third of loam, one-third of good peat, and one-third of vegetable mould, would be an equivalent for the loam from rotted turves; and with regard to the dung, sheep's, horse's, or cow's, when rotted into mould, only differ in strength, not in quality. Sheep's is the coolest, cow's the next, horse's the warmest, and half horse's and half sheep's would be equivalent to all cow's; but the grower need not fear his proportions very much. When you are potting the plants take off all offsets, and those which have no roots should be put round the edge of a small pot or pots; let these stand in the centre of larger ones filled with mould, so that a bell-glass may be placed over them, for it hastens the rooting. Those which have roots may be potted in proper sized pots, always taking care that the pots be not too large; and offsets may have all the soil shaken out of their roots when shifted, except in growing time, when, if they require other pots, the ball ought to be removed whole. When potted, give gentle watering; place them all in a frame, and shut them up for a day or two, shading them from the sun.

Balsams require changes of pots and picking off the blooms all the while you require them to increase much in size; but when you want to encourage the bloom they may be left in their pots. Those who desire to grow them very large, must give plenty of pot room, plenty of heat, occasional picking off the young buds, and plenty of water. Others, who want moderate size and early flowering, may have the plants to themselves as soon as they are in thirty-two sized pots.

Carnations and Picotees.—When the Carnations and Picotees have done blooming, and the shoots are all layered, turn the pots out of doors, and let the plants have all the weather. See that they are not devoured by slugs or snails.

Chrysanthemums. — Take heed that the young plants which are out in the open ground do not root through the pot into the earth; shift them into other pots as the old ones get filled with roots; pot off the struck cuttings of last month in sixty-sized pots, and place them in the open ground as soon as they are established; and when the pots are filled with roots, shift them successively to forty-eights and thirty-twos. The plants that were lopped last month for cuttings have become bushy, but they must be well attended

to and shifted; for although they will be later, they will be fine if taken care of.

Climbing Plants must be fastened as they advance; when they have good growth upon them they are very apt to weigh down and disturb some of the fastening, especially honeysuckles and clematis, which form large hanging heads, and get confused, unless watched and fastened as they grow.

Cock's-combs. — Continue the treatment already recommended. By this time the flower, which was not so large as a button when the plants were starvelings two inches high, is increased as much as the plant, for the flower seems to have the same power of growth as the plant itself, and ramifies as much.

Dahlias.—Those who grow for exhibition must watch all the opening buds, and the instant they find that a flower will not do they should take it off. Every flower that opens weakens the plant, and therefore, those who are careless of everything but success, and sacrifice the appearance of the garden to the shows, should not allow one to remain on the plant after it is found useless. The hunting for vermin and destroying them must not be relaxed, for a single earwig would destroy a bloom. Those who imagine the covering with a flower-pot on a flat tile will be an effectual protection to the flower against earwigs, must see that the pot is perfectly level on the edge; not one in twenty are so. But at some of the potteries they make pots on purpose, with no bottom, but a groove to hold a round glass or a round tile, according to whether they want the cover dark or light. Continue to take shoots off any that you require to increase, but remember that the hotter the weather the hotter must be your striking frame, for the bottom heat ought to be as the top just to promote striking; and this is the great cause of difficulty in striking late cuttings. Seedlings are beginning to flower. The instant you see that a plant will be useless, dig it up, or, if your time is short, chop it down, and do not miss a day in examining; the great evil to guard against is suffering yourself to be tempted to leave a doubtful flower; for if you once do this, you will find a quantity of things about you just too bad to be worth growing, and the desire of selecting a few will make you bestow time and trouble that nothing will repay. If a flower is not better than anything we have already, or tolerably good with an entirely new colour, reject it at once; it is infinitely better to see the ground clear than cumbered with ordinary flowers. It is necessary to lay down a rule to begin with, and to persevere with it; and that rule should be, to destroy everything that is not decidedly new and good. If you find any really desirable flower, set to work at once to take cuttings, and propagate it, because the sooner you have a stock the better. Take the side-shoots as soon as they are long enough; and as it is necessary to induce these lateral shoots, it is well to stop one or more of the branches by pinching off the ends; take off about two good joints of the cuttings you intend to strike,

put them singly in pots, and plunge the pots in the hot-bed to the rim; keep the glass pretty close until they have struck, watering, however, freely, and keeping up the heat, but shading from the mid-day sun.

Dutch Gardens, or Geometrical Gardens.—Be ready with some subjects to fill up vacancies in the flower beds; they should be turned out of pots ready to flower, because nothing looks worse than empty flower beds, unless it be the dead plants of flowers already gone by. If the subjects are planted wide enough apart to get others in between, stocks might be planted, with China aster and Nemophila, and other similar changes can be made with advantage.

Hollyhocks.—Seedlings are in bloom or coming into flower, and you must examine them. Rejected ones must be cut down at once, and the others left. Mark with labels such as are worth keeping, and let the labels refer to a book in which you enter all the remarks you have made on the flowers, particularly a good description of the points for which you value them.

Lupines.—Only the perennial kinds are worth notice at this time; all the seedlings that have not been planted out should be placed in nursery beds and borders, according to where they are intended to bloom the next year. Many, however, do this earlier.

Mimulus, in beds, are brilliant, and if kept well cut back, and the old stuff, that has done blooming, cut out of them from time to time, will continue to flower until the frost cuts them off altogether. There is nothing more brilliant while in bloom than the Mimulus; and although, if neglected, it will go out of flower for a time, it will continue to grow and bloom as long as you will cut out the portions that have done blooming.

Mowing the Lawn, keeping the Shrubs within bounds, Weeding the Gravel Walks, and hoeing the ground all over, will be found beneficial in all the hot weather, and watering must be governed by the state of the weather; only still bear in mind that once watering thoroughly is better than half-a-dozen trifling waterings.

Pansies.—Continue to take side-shoots, if you can find them, and propagate for new beds. When you care to keep up a lengthened succession of blooming sorts, you should obtain side-shoots, and strike them whenever they present themselves. When you cannot take side-shoots, prefer small shoots to large ones; but there is nothing makes a better plant than the side shoot that comes up from the bottom. A new bed may be made every month through the summer if it be desirable; and those that are too late for autumn bloom will be ready for the spring.

Paths.—Narrow paths are a nuisance in gardens. They are unsociable to company, destructive to edgings, detract generally from appearances, and have but one solitary excuse, which is a mercenary one—the ground is scarce, and therefore people persuade themselves they cannot spare so much. Nobody can admit the excuse; because, if there is to be no comfort in a garden, there may as well be no garden. Where they are intended to walk or,

three feet is the least space that can possibly be tolerated for one person to walk at a time, but five feet is required for two, otherwise the ladies' dresses sweep over whatever edging there is, and hurt the flowers nearest the borders.

Perennials.—This is a large item in garden plants. If they are planted out from their seed beds or seed pans early in this month, they will get sufficiently established to stand the winter; but if driven late, and bad weather ensues directly, they will for the most part receive a check that does them mischief. Seedlings, if very choice, should be potted, and kept in frames, Auriculas in particular; Carnations and Picotees, if valuable sorts, should also be potted in plain loam, without dung; but all hardy perennials are best planted out in nursery beds. Hollyhocks, Polyanthus, Lupinus polyphyllus, Phloxes, Antirrhinums, Columbines, Sweet-williams, and many other plants, do well in the open ground, in nursery beds four feet wide, and plants six inches from each other. These must be watered when planted, and be afterwards kept clear of weeds.

Phloxes require support if tall, and all tall weakly border plants require the same. Phloxes should be supported loosely as they rise for bloom; because, if fastened tightly they cannot push up, but bend, and even break, with a few days' growth. Phlox Drummondi, in full bloom, gives the cultivator an opportunity of selecting the best colours for seed; but if the form be bad it is better let alone. This annual is inclined to be well formed, and therefore to save seed from any one second rate would be bad. These may be struck in heat under glass, and though only an annual, may be thus converted, as it were, into a perennial, because it lives through the winter.

Pinks.—Make beds with the rooted pipings, if you have not already done so; and recollect that a pink is nothing without it grows in rich ground. The effect of poor ground is loss of size, colour, and character. A laced pink loses its lacing, the colour is spoiled, and it is so small that it would not be known in many cases. Look over new beds already made, and see that none of the plants are disturbed; if they have been moved by worms or other causes, press the earth about them.

Plant out Biennials, if you have not already done so, and also perennials, Polyanthuses, Primroses, Wall-flowers, Sweet-williams, Canterbury Bells, Two-year Stocks, Larkspurs, seedling Pinks, Carnations, Picotees, Hollyhocks, and other choice things. Weed those already planted out.

Tulips.—Throw the soil out of the beds in a ridge on each side, that it may be chopped over and sweeten during the period between this and November, the month for planting, the best bed as well as the open ones, and let there be a very sharp look out for wireworm, grub, and other vermin. Examine the bulbs in the boxes, and begin making such alterations in the arrangement as you propose. Whenever you have half-an-hour to spare, as it is generally too long a job to be managed all at once, lay out all the very small offsets, to be planted early in October, or even directly, if

they are at all in danger of drying up and shrivelling.

Cheap Green Colour for palings may be made by a mixture of four pounds of Roman vitriol, dissolved in boiling water, only sufficient to dissolve it, and two pounds of pearl ashes, all well stirred together, with two ounces of powder of yellow arsenic. The object of this is to daub over rough fences and palings; it is not pretended that a few pence is to produce a paint equal to that which would cost as many shillings. It soaks into wood and kills vermin.

THE ROSE GARDEN.

Roses.—Examine all the Roses that were budded in June and July; first, to see that none of the shoots of the stock remain on, for they would weaken the buds; secondly, to see if the buds have united. The tie may be very gently and carefully untied, and if the bud be green and plump they have taken, and the stock that is beyond the bud may be cut off close. Cuttings of China Roses may be taken off, and planted in the open ground, in the shade, under a hand-glass; if you shade the glass it matters not where they are put. The Roses in flower should be, every two or three days at the most, cleared of the decayed flowers; it promotes the continuance of the bloom. Remove all suckers from the roots; prune judiciously by cutting out all weakly shoots, and occasionally by making shorter that which is growing too strong. Cuttings that have struck may be potted off or bedded out; they make excellent autumnal flowering groups; may be bedded out in different coloured patches, or with the colours mixed. The crimson China for the outside row of a basket, and the common China inside, and to finish, makes a very effective appearance; but there is an abundance of choice for your purpose. The buds of rare Roses may still be inserted if the bark of the stock will rise; but if not, insert them in common China stocks, which will always rise; and whether they agree or not, the bud will grow enough to make sure of saving the sort; but generally, the fancy Roses do well on China stocks. Roses in pots may be shifted if at all pot-bound; but watering with a little manure water is almost as good as a shift. Small kinds of Roses are best on their own roots; use the knife to rank-growing Roses, and judiciously prune all; that is, so far as the removal of weak spindly shoots and superfluous branches go. Go over all the Rose nurseries, to see if you can pick up anything new and good as an improvement to your own collections, but buy nothing without really admiring it.

THE GREENHOUSE.

It is requisite to turn pretty well everything out of the greenhouse into the open air, and as much as possible in the shade, far enough to keep off the mid-day sun; Cactuses may be excepted, for they may have as much sun as possible after they have flowered, nor will they require to come back to the greenhouse until November. Botany Bay plants, and hard-wooded plants generally, are rapidly finishing their growth; the Camellias have set their blooms,

Azaleas have completed their growth; be careful that none of the roots grow through the bottom of the pot and root into the ground. The pots must be examined occasionally, to see that the drainage is free; and at leisure you may begin to put sticks and regulate their figure, preparatory to going into the houses. The greenhouse being more empty now than at any other season, should be cleared of its plants, and well washed inside, and, if required, painted outside: neglect in these particulars is fatal. Neglecting cleanliness inside is ruin to the plants, and neglecting to paint as often as wanted outside is fatal to the wood-work, which soon decays if the wet soak into the work.

Camellias.—Take cuttings for stocks, and prepare the pots as last directed. Some like the cuttings large, but one eye below the surface and one above is long enough for anything. These may be placed as thickly in the pot as they can be put, covered with a glass, if you have one handy; but they will strike in a frame without any bell-glass over them. Stocks that have grown, and filled their pots with roots, may be shifted into larger pots, because the stronger a stock is, the sooner a bud or a graft makes a plant on it. All the plants may be examined, to see if they are pot-bound, or have filled their pots with roots, and any that have done so may have a shift, and one watering to settle the earth to the roots; but after that may be kept short of water, lest they start off for growth again.

Cape Bulbs.—This is a good season for repotting this class of plants. They should be turned out of the pots they grew in, and all the bulbs and offsets collected from among the soil; these are then to be repotted in fresh soil, placing one, two, or more bulbs in a pot according to the size employed. Five or six of such bulbs as those of Ixia or Oxalis may be put into a pot five inches across; the larger Gladiolus, Antholyzas, &c. should be put singly into pots of that size. A good general compost for them is made of equal parts loam, peat, and leaf mould, which, if the loam is light, will require the addition of only a very small proportion of sand. When all are potted, they may be set on one of the shelves of the greenhouse near the light; and they should have but little water until growth is commenced, though the soil ought to be kept slightly moistened. When in full growth and flower they take much more water.

China Primroses.—Sow the seed the first week in light rich soil; that is to say, if you want a lot of single flowers, and let it be placed in the hot-bed till it vegetates, when it may be gradually removed into the cold frame until it is large enough to prick out into small pots. Pick the dead leaves off your double ones, and if the pots are too full of roots, shift them instantly to pots a good two inches larger across, and set them in a cold frame, so that they get no more rain nor sun than they require, and you have them under control.

Chrysanthemums, in pots for blooming in the greenhouse, must at this season be very closely attended; they must on no account

suffer from want of water, or their lower leaves will be killed or turned yellow, greatly to the deterioration of the plants as regards their appearance. Cuttings of the tips of the shoots struck now in a mild hot-bed, make very interesting dwarf blooming plants.

Cinerarias.—Look to the seed of those you are saving from, and others you want to propagate may be parted, and all the offsets taken from the root repotted; if small, round the edge; if fair size, in the centre, of a sixty-sized pot.

Climbing Plants, such as all the Kennedyas, and their families, under whatever name they now go, must be fastened to their trellises as they advance. The Tropæolums also require constant care; and those which have lost their beauty may stand aside.

Cuttings of all kinds of greenhouse plants may be taken now; shoots that have completed their growth are the proper sort to prepare for striking. Cut up the bottoms to a joint, and strip off the lower leaves; prepare pots for the more delicate things, by putting crocks and mould above them to within half-an-inch of the top, and fill that half-inch with silver sand, thoroughly soaked in water, so that, without the help of any dibble, you can stick the cuttings in as far as the soil, and just through the sand; a little water will close the sand about the stems, and a bell-glass, just a trifle smaller than the pot, to cover them, completes the business so far; they may then be put into a hot-bed, not too powerful. All the hard-wooded plants will do for this treatment.

Geraniums. — The plants cut down last month, if kept rather dry and exposed to the sun, will now have broken out a supply of young shoots. As soon as these can be distinguished, commence regulating the shape of the plants, by thinning such as come in inconvenient places, or are too much crowded together, in order to give the others more air and light. As soon as they are well broken, the plants may have their roots reduced, and repotted into smaller pots, after which they should go into a cold-frame.

Plants in Flower.—Free growing subjects in blossom, that may be getting in any measure exhausted, but which it may be desirable to maintain longer in a state of bloom, may be assisted by the use of weak manure water. This may be made of various ingredients; but the simplest and generally most easily obtained material is the rotted horse-dung from an old hot-bed. Of this a spadeful may be put to a dozen gallons of water, and after being stirred up and allowed to settle, the clear liquid may be used, diluting it with half its bulk of pure water.

Red Spider.—This is one of the most disagreeable of all visitors. It insinuates its poison into the plants, and sucks out their natural juices; and when once they have a fair hold, a plant is sacrificed; besides, it is a pest even to vines. The most effectual remedy is to sprinkle the flues with sulphur, and heat them, so as to raise a moderately strong fume in the house; and we are not to be told this remedy is a bad one because it is possible to destroy a plant by excess of it.

SEPTEMBER.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Auriculas.—These must be examined; their dead leaves picked off, the frames cleaned out, and the pots arranged for the winter. They may have all the air that can be given, by taking the lights partially or altogether off on all dry days. They must be shut down in heavy rains, because we must begin now to be sparing of water; not to let them get quite dry, but not to give them any water while they are at all moist. The less water they have, so they but keep alive, the better, until they begin to grow again. Seedlings must be examined, as well as offsets, and all that are crowded and large enough to pot singly must be placed in small pots, one in a pot. Seedlings that have been pricked out many in a pot, may be replanted half the number in a pot.

Carnations and Picotees.—As the layers of these plants get well rooted, they must be cut off the old plants, and be potted in clean loam, without dung; and if the loam you have be too stiff, mix two-thirds of it with one-third peat, if you have it good; and if not, put instead of it as much sand as will open the pores a little; for the less excitement these plants have during the winter months, the better. These should be two in a pot of the size forty-eight, and when watered, to close the earth about their roots, they should be placed in a frame on a very dry bottom. The best way to ascertain whether the layers are struck, is to scrape the earth away from the upper part of the stem of the layer and draw up the peg; if the layer is pretty firm in the soil, it is rooted, and should be cut off the old plant as near the main stem as may be, because whatever is useless can be cut off afterwards. Having severed the layer from the plant, thrust a trowel or a wooden spud into the soil, so as to raise the earth and roots together without breaking the tender fibres; then with a sharp knife cut off all the stem below the part rooted, and pot them near the sides of the pot, opposite each other. Let each pot contain a pair of the same sort; on no account pot two different varieties in the same pot, for it leads to occasional mistakes. The closer the stem below the root is cut off to the joint next the root, the better, for there is less chance of rotting.

Dahlias.—Place extra stakes where they are necessary to support the growing branches, for the height of the bloom may be considered to last until the frost

catches them. The growth of the branches, however, renders them too heavy to be supported by the single stake, and therefore two or three, or even more, are sometimes necessary to save the heavy side branches from the effects of the wind. Towards the end of the month you must expect frost, and be prepared for it; and it is desirable to earth-up the stems and roots a few inches all round, that the crown may be protected, in the event of a frost coming, because, if at all injured, the root may be lost by rot, during the winter, or the stem may rot round the crown and destroy the eyes: earthing-up is an effectual protection. We need not repeat the directions for last month as to the general management. The cuttings that are striking or have struck must be kept growing in heat until tubers are fairly formed, when they may be gradually cooled, and have no more water; they may be then placed in the greenhouse to dry and die down; but this must not be done until there is a fair tuber formed. When perfectly dry, the pots may be piled up in the dry part of the greenhouse, on their sides, or placed anywhere out of the danger of frost, heat, and wet; but many of these will not be ready till October, or perhaps November.

Dahlia Seedlings.—By this time you will have been able to get rid of hundreds not worth growing, and you continue to see them opening from day to day, without discovering anything, perhaps, really worth propagating. You must not be disheartened by the want of success so far as you have gone; the best may come out last, and, inasmuch as single and semidouble ones are always earlier than others more double and decided, be not therefore careless from day to day, because you have so often been disappointed, but go more particularly over those which you have considered doubtful, and, unless there is something very good of an old colour, or very novel in colour, have resolution enough to throw them away, and be not perplexed with a quantity of doubtful things not worth the trouble of propagating. The only varieties not really good that are worth trying again, are those which happen to have splendid petals, but from their want of doubleness are of no use; it is just worth while to try such as these a second year, by cutting the bulbs up into a few pieces, and giving them a chance of coming double. The only excuse for this is the constant experience of our best flowers coming now and then single and bad, showing that a really good flower may give bad blossoms; we argue, therefore, that deficient blooms in a seedling may be the same as deficient flowers in an acknowledged good sort—only accidental. Pick off all the ripe seeds of Dahlias, and especially keep separate any of the pods or sorts that you may have marked as having been remarkably fine. Let the seeds be dried in the sun, and rubbed, to clean them from the husks; they may then be preserved in dry boxes until wanted for use. The seedlings that are really promising might be protected in some way from the chance of frost, and especially earth-up round the stems

and roots, as directed for old plants, to save the roots from its destructive effects, even if you cannot save the whole plant.

General affairs.—Cut down the decaying stems of all plants out of flower; hoe and rake the borders, to clear away all weeds and leaves, and large stones; roll the gravel walks after rain, and always keep them clear of weeds; continue to mow the lawn as long as the grass grows. Prepare all the frames for the reception of their winter tenants, by clearing the ground on which they stand, and brushing or washing out the woodwork inside, so as to disturb the eggs of insects. The box edgings have done growing, so that if necessary some could be removed, but the principal alterations in gardens begin next month. Tie up Chrysanthemums in the open ground, and remove the potted plants into the houses or frames. Potted annuals past their bloom should be turned out, and the pots cleaned and put away. The earth from pots should be all placed together in a heap; it is generally of great use to mix with other composts.

Geraniums in the Borders and Beds should have cuttings taken, that may be struck and grown slowly through the winter, for bedding out in spring, and any of the old planted-out ones that are worth saving should be taken up and potted, to go into frames or the greenhouse for the winter. Those struck now should have their tops pinched off directly they have struck root and begin to grow, because they ought to be kept stocky and short; they must have but little water during the winter, and be covered up, if in frames, to keep out the frost, for the garden depends much on a supply of these plants in the spring.

Hardy Annuals.—We do not mean those usually called hardy, because some of them will not stand a frost; but such as will, may be sown to come forward in early spring. Self-sown annuals suggest this, because they sow themselves by dropping when ripe, and it is at least the natural season for all hardy seeds.

Lilies, Crown Imperials, and other soft scaly bulbs, may now be removed carefully, for they will not bear to remain out of the ground long enough to dry, as they begin to get weaker. It is an early time for bulbs in general, but those planted, or merely removed from one place to another pretty quickly, take no harm. The scaly bulbs are imported in sand, or placed in sand immediately on their arrival, and if now procured should be planted forthwith.

Management of Flower Beds, &c. About the end of September gardens look deplorable, if there has been a sharp frost, and there must be something done to make them decent. By a very simple provision, a wonderful improvement may be made in their appearance. There is nothing more easily managed than dwarf evergreens in pots; they may be potted very small, and kept in a common bed in the young state, and shifted from time to time as they grow older. Of the dwarf plants best suited to the purpose we are about to use them for, we may mention Laurustinus, Arbor Vitæ, Red Cedar,

Rhododendron, Kalmia, Andromeda, Yew, Box, Holly, and Berberis Aquifolium. We are looking upon the desolate borders and flower-beds, whose ornamental tenants have been killed to the ground or so damaged that we must remove them. First cut down everything that is past its beauty, and a blemish; rake off all the decayed leaves, stems, and flowers, so that the border may be at least clear; then bring forth your dwarf shrubs, and place them about the borders where there is room for them, looking well to the diversification of the various kinds, and providing for the best effect. Now, having made up your mind where they will look best, plunge the pots into the ground, covering the rims that they may not be seen, and regulating the surface of the ground as you proceed, that the border may look highly finished, and the garden complete, although not so full of flowers. This winter dressing is highly appropriate for geometrical gardens, but the shrubs should be all planted uniform. If there are Hollies, let all the bed be alike, or else the sorts diversified in a uniform manner. If the circles of beds are six, let three be alike, and the other three alike; if the circle be eight, let four be alike, and the other four alike, however different the threes and the fours may be from each other. This is worth attention, and there is yet room for the display of taste.

Michaelmas Daisies, or tall Asters of all the kinds, should be supported, if in exposed situations: a stake driven down the middle, and bass matting tied from it round the stems, so that the branches may be tidy.

Pansies may still be planted in beds, and potted in sixty-sized pots, to be framed all the winter. The cuttings of such as we are anxious to propagate may be struck, but they should be put in pans to be covered with hand-glasses, and placed on a little bottom heat, because the alternations of sun and frost would endanger them if exposed to the weather; besides, the bottom heat facilitates the striking. The potted plants must be put in the cold frame or pit, near the glass, and when the pots fill with roots, shifted to larger. These may in the course of the winter be forward enough to occupy sixteen-sized pots, and bring early spring flowers as fine as in the open ground.

Perennials that have done flowering may be parted, and planted out in nursery beds. A great number of herbaceous plants come under this definition. Where any have grown into patches too large for the place, they especially require attention; the patches may be removed altogether and parted, to be replanted, or, if you desire to retain a patch, chop some off wherever it can be best spared, or all round it, and leave only as much as you require.

Seedling Plants of any kind, not yet disposed of, may be planted out if hardy, and potted if tender.

Tender Plants in Borders and Beds.—All the kinds of plants that will not stand the winter out of doors, and are required to be preserved, should be taken up and potted, and headed in, to be kept through the winter; the cuttings

taken off may be struck for next year's stock; Fuchsias require a good deal of cutting down; Verbenas want cutting in. You can hardly have too large a stock of all bedding-out plants, so that you should make all the plants you can of the cuttings. All the plants that can be spared should be left in the beds and borders untouched, because they will continue to give flowers till the frost cuts them off, and that may be protracted till Christmas, though it is not safe to leave any that are wanted after the middle of this month.

Very early Bulbs, such as Crocuses, Snowdrops, Daffodils, and some kinds of Narcissus, may be planted and potted now, though it would do any time from now till November.

Details of the Properties of Flowers.—We have in our published rules for estimating new flowers avoided all details that interfere with variety, and we cannot help smiling at the discoveries made by some who may be called special pleaders in the fancy. We have adopted general rules. In form we admit of no compromise; the outline, the smoothness of edge, the thickness of petal, the denseness (not the brilliance) of colour, the decision of marking—all these things we must have; but the man who pretends to tell us how this outline must be formed, what shape the inner portion of petals must be, how the thing is to be made up, and so forth, would reduce perfection to a sameness that nobody would tolerate: when, therefore, we see the small fry of floriculture entering into details that merely tend to limit the variety, we think it a pity they can find journals to insert their opinions; we would rather see them driven to set up a journal or a periodical of their own, because their crude ideas would then be only read by persons who agree with them.

French Flowers.—There was a time when the French Carnations, Picotees, Dahlias, and Tulips, were the most outrageous caricatures of flowers that could be imagined; so long as they were something out of the common way, there was no other qualification necessary; ugly or handsome, round, square, or three-cornered, no matter, they were described "accurately," with a careful omission of any point that would militate against them with the English growers; but they were nevertheless frightful objects, and only came here to be grown once and destroyed. Let us, however, except Roses, for they had a fair start with them and kept it; hundreds that they sent over were good for nothing, but there were some that made amends for all the disappointment occasioned by the less valuable. At present the French are acting upon our own notions of perfection; their Dahlias are esteemed according as they approach our standard, and some are very beautiful approximations to what we esteem as good. The interchange of flowers has done a good deal towards this; Mr. Salter, of Versailles, now of North-end, Fulham, was the link which joined the French and English florists in the one great object, for he sent over the best of the French, and had back the best of the English, till they perfectly understood all our notions.

THE ROSE GARDEN.

The Roses of the summer kind will have made their growth, and the heads of standards will be very large. All the branches may be shortened to a foot or so in length, that they may not catch the winds so much, because, if left with all their growth on, they would be liable to be broken. If a head with all its summer growth on were unsupported, it would be blown off its standard or stem—an accident by no means uncommon where the stake is fast to the stem, and the head not well secured or reduced in weight; but it will not be right to prune it close, for the winter frosts will often kill the ends of the branches an eye or two back. All the hanging branches on pillar, wall, festooned, or arched Roses, should be fastened in their places or removed; nothing ought to be loose.

Cuttings may be taken of all the China and Bourbon sorts; in fact, of all the smooth-barked kinds. Let the pots in which they are to be struck be filled with soil, all but an inch, which inch must be sand; prepare the cuttings by taking off all the wood below the joint it is intended to insert, and put these cuttings into the sand low enough to touch the mould, but not enter it. The sand should be completely saturated with wet, and, when all the cuttings are in, watered to settle it close to the stems. These may be placed in slight bottom heat, and be covered with bell-glasses that touch the sand and keep them air-tight. Cuttings may also be placed in the open border, not more than two inches apart in the rows, and the rows six inches from each other. Trim the Roses that are still in bloom, by cutting out weakly wood, but not materially affecting the branches left on, which should be the stronger ones.

Seedlings, and young Roses in beds, must be weeded and watered, and any that are flowering may be propagated or rejected as they deserve. It is useless to preserve any second-rate flowers; they are better thrown away, for they only perplex and vex the grower, who had better never boast at all of raising seedlings, than boast of raising inferior ones.

THE GREENHOUSE.

Prepare the houses for the reception of plants which must be tied and trained in the form they are wanted, before they are placed in the houses; examine their drainage; see whether any want a shift to larger pots. When such is the case, let there be a sufficient difference in the size to enable you to thrust down the soil solid between the ball and the pot, or the plant will suffer. At this period the plants have, for the most part, made their growth and set for bloom; therefore, unless they are pretty full of roots, it is not desirable to shift them, for they get occasionally excited into growth instead of flower; the leaf-germs, that would lay dormant until after flowering, become excited and grow, and, by taking away the nourishment from the germs of flowers, they decline, shrivel, and disappear in dust and scales. But we must particularize a few plants.

Azalea indica.—These noble plants may be all placed in their

pits, or, if too large for pits, in the cool part of the greenhouse; they will, however, be better kept cool all the winter; they want no fire-heat, but they must not be damp. All the small newly-struck ones must be potted in small pots. If the plants are to go up pyramid-shape, they must be left to grow their own way, all but checking side-shoots as soon as they have grown enough, and stopping any branch that is growing too strong. Where you design the plants to be short and bushy, the top must be taken off when it is first potted, within two or three joints of the bottom. The cuttings continue growing, but the plants which have made their growth after blooming are not to be excited into further growth on any account; they need but little water, and cannot be kept too cool. Seedlings must be weeded, and, when large enough, pricked out three or four in a pot round the edges, and then, when large enough, potted singly; therefore now pick out small seedlings, and pot those that are large enough, and shift any that have been previously potted and filled their pots with roots. Large specimens require to be regulated a little, because the beauty of the plant consists in a tolerably even surface, for the blooms will come at the ends; all the shoots, and any branches that protrude very much, must be tied up sloping higher, or down sloping lower, to bring the end even with the surface formed by the ends of the other branches. All through the winter they should be kept close in bad weather, and have all the air when the weather is fine.

Camellia japonica.—These noble plants now show their bloom buds plainly; take the plants one at a time, and, by means of a stick or two and bass matting, constrain their form to the best advantage. If there be any straggling branch, with no bloom on, cut it off at once; but if there be a bloom-bud, let it be till the flower comes out, when it may be taken to greater advantage. These may be carefully shifted, if they require room; but not carelessly, for the buds may grow instead of bloom. Let these plants be so placed as to have plenty of room. Camellias may be placed on the cooler side of the house, if there be one side cooler than the other.

Chinese Primroses.—While these plants are growing and filling their pots with roots, continue to give them room. In shifting from one pot to another, never omit the drainage; you need not break the ball of earth, nor remove the old drainage, but let there always be new to each pot; stir the surface well, and see that the fibres are not damaged by stirring too low. These plants should be occasionally well watered, but not often; when the soil in the pot is saturated, it will last a long time without any more, and the plant might almost flag before it is watered again.

Fuchsias.—The plants that have bloomed early, and have got shabby, should be deprived of all their weakly shoots, and the strong ones should be spurred in, within two or three inches of the main stem at the bottom, and within half-an-inch at the top; they may then be placed in a dry part of

the greenhouse, where they will not require any further watering for months. Those which have not begun to look shabby, but continue flowering, may be placed in a conspicuous part of the greenhouse, for the sake of the flowers. All small plants may be kept growing, and due attention be paid to stopping them, or otherwise, according as you desire to regulate their shapes; but the water must not be lavished much upon Fuchsias at this time of year. The blooming plants absorb a good deal of moisture, and those in full growth do also; but, for the most part, these plants are not moving much, and therefore must only be watered when the soil is getting very dry. The common run of Fuchsias of the ordinary size, and not particular sorts, may be put under the stage of the greenhouse, or in some of the pits, or anywhere else out of the way of frost and wet, all through the winter. Cuttings of Fuchsias may be taken and struck; cuttings already struck may be potted off singly in small pots; others that have filled their pots, and are in good growing order, may be shifted.

Geraniums.—Cuttings that have struck may be potted off in sixty-sized pots, and placed in pits or on shelves in the greenhouse. Those potted off last month, if not stopped before, may have their tops pinched off, to make them throw out side shoots. The larger plants must be stopped, wherever they are growing too fast; let them have good growing room, for if they are cramped they cannot grow handsome. Some branches may be growing out of shape; such branches must be shortened. Examine all the drainages, to see it is quite clear, and if not repot the plants.

Kennedyas, and many other climbing plants, require occasionally to be unwound from their trellises and pruned; a good deal of old wood can occasionally be removed, and plenty of strong young growth left to cover the trellis again. In retaining those that have been undone, make sure of the bottom portion being covered, and if you can only go upwards a few inches, there is never any difficulty in covering the upper portion. If climbing plants want shifting, it is a troublesome job, unless they are cut down very much, or left exactly as they are, and can be shifted with their trellis covered as it is. Climbing plants running up pillars, or planted out in the conservatory or greenhouse, may be cut in and regulated, so that the branches shall not be hanging about. You may strike all the cuttings.

Thrips.—These are troublesome little pests, and require to be kept under, or they soon render the plants shabby. In the case of choice plants, and those having moderately large leaves, it is quite desirable to look over them, and crush all of the insects that can be seen with the finger and thumb, then fumigate twice in close succession, and ply the syringe freely afterwards. Plenty of food at the root, and a damp warm atmosphere, are fatal conditions to both the thrips and red spider, which can only multiply in a dry atmosphere, and chiefly attack plants whose growth is becoming exhausted.

OCTOBER.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Alpine Plants in pots should be plunged in a bed of sand or coal-ashes, to protect their roots from severe frosts. The situation chosen for them should be moderately sheltered, and where they can, be covered up to protect them from heavy rains; but except in very severe weather they require little other shelter, and this is best afforded by a covering of some such open material as dried fern, the dried haulm of peas, &c.; nothing should impede a free circulation of air about them, when not excessively frosty.

Alterations in contemplation should now be commenced in fine dry weather, and if there be rain come on so as to make the ground clammy, work it no longer, for you will do more harm than good. Form your paths, clumps, or borders, with a line and pegs, or, if you design any particular shape that is not to be marked out by geometrical rules, lay a line along the ground about the form you want, and adjust it by pegging it inside or outside, according as you want to send it one way or the other. Dig the clumps two spits deep. If the bottom is good, turn it to the top; if bad, merely loosen it and leave it at the bottom. If you are going to lay out a garden, begin by digging, trenching, and levelling, before you mark a road or a path, and then form these by laying a line down on one side, and adjusting it to the exact sweep you require. If you design the edging or verge to be turf, lay down the turf carefully, with the best edge to the path side, that the line may be kept perfect; then with the help of a rod the length that is intended for the width of your road or path, lay the turf on the other side, so that the smooth line is kept, and the width preserved uniform all the way. Next, form the shape of your clumps by first putting down pegs nearly to your mind, and then laying down turves with the best edge inwards, so as to mark the exact form you require. These being marked out, all the surface has to be covered close with turves, or if on too large a scale for that, levelled with the verges already down, and sown with grass seeds, and rolled all over. The general planting must be left till November for choice, because many evergreens have not completed their growth; and in the fine weather planting is good from now until February or even March, though much better in November than any month in the year.

Balsams.—Gathering the seed

is almost the only thing left to do with these plants, because they have passed their beauty; and if the seed be not wanted, they may be turned out of the pots, beds, or borders as soon as their bloom fails.

Borders.—Clear off all decaying plants. Cut down the stems of flowering plants that have done blooming. Weed the borders and leave everything clean and tidy, that they may require little else until the herbaceous plants and bulbs all appear in spring.

Carnations and Picotees ought to be all potted off and in their winter frames; they must not have much water, but in dry weather let the glasses be taken off, and the plants have all the air. Of course, any that are not potted off should be attended to directly, and if you have more than you can pot off, plant them in beds, a foot apart every way, and choose a high and dry part of the garden, as they are easily destroyed by damp.

Chrysanthemums. — The potted plants should be now taken into the house, or placed in pits, if they are not already secured. If the blooms show, or rather the buds, and the plants are in the least cramped for pot-room, you may shift them to pots one size larger, because they will not grow much higher, and the new life which will be imparted to them will be thrown into the size of the blooms; but if the buds do not show, continue them in the same pots: they should have all the air that can be given on mild days. The plants in the open border may require support, especially if they have not been shortened; one stake and a band of bass matting will be sufficient; place the stake at the back.

Climbing Plants.—Honeysuckles, Roses, Clematis, Pyrus japonica, and other plants used to cover arbours, fronts of houses, walls, &c., should be now regulated, all the waste and straggling growth cut back, the loose branches intended to be saved nailed in their proper places. The fastenings of the main branches should be looked to, and if weak, removed for stronger ones, for the winter weather tries the strength very much.

Crocuses. — This month you may commence planting out these early flowering bulbs; the old-fashioned way was to plant them all along the edges singly, but they are more effective in patches of half-a-dozen, and much farther apart; a patch of yellow, then one of blue, then one of white, are more effective too than mixing them, besides the stock being kept more valuable. There are new blue ones, and new white ones, as well as a grey and a shaded variety, all raised from seed in England, and if let out this autumn will be at a good price for the growers to make stock from, and not in any quantities. Plant them two inches deep, and six inches from the edge; otherwise their green leaves will grow over, and destroy any edging you may have, whether it be box, or anything more or less valuable.

Crown Imperials. — These are soft and scaly bulbs, which ought to be planted as soon after they are taken up as possible, so that imported bulbs should be planted immediately; these should be planted three feet from the edge,

for they run up two feet high, and form a handsome bushy plant; there are various shades of yellow, and some nearly white; they may be planted three inches below the surface, and should be left in the ground two or three seasons without taking up.

Cuttings of the various flower-garden plants, as Verbenas, Jacobæas, Gazanias, Cuphæas, &c., if not already planted, should be put into store pots, well drained, filled three parts full with a light open compost, and then covered with an inch of white sand, into which the cuttings are to be planted; the pots should be placed in a frame or pit where there is a slight bottom heat. They must not be too much crowded, nor at any time kept too damp, or they will become decayed. These cuttings, when rooted, are to be hardened off gradually to the temperature of a greenhouse, in which they may stand on a light airy shelf until spring. Cuttings put in earlier will have to be potted either separately in small sixties, or two or three in a large sixty-sized pot, to remain through the winter.

Dahlias should be taken up and their labels be wired to them, the stump cut down to within four inches of the crown; they should then be placed in a dry outhouse, with their stems downwards, so that any superfluous moisture should run out of the hollow stalks; but if in any place which is not protected against frost, they must be covered with mats and litter at night, and not uncovered until frost has disappeared. As soon as they are fairly dried, they must be placed where they are to be wintered: the very choice sorts of which you have no duplicates may be placed in dry sand in boxes, or they may be potted in dry soil, or they may be hung up in the greenhouse or any apartment in which the frost does not or cannot reach them: the ordinary ones of which you have duplicates may, for want of a better place, be thrown in a heap into a dry cellar, or underneath the stage of the greenhouse; wires are necessary to fasten the labels, because string would rot long before the winter passed, and the dahlias would be almost useless without their names.

Deciduous flowering Shrubs should be now removed, and planted where they are required on the borders, in the clumps, or on the lawn; the various kinds of almond and peach, the double-flowering cherry, Pyrus japonica, Persian, Siberian, and common lilacs, the Gueldres rose; all the thorns, scarlet and yellow horse-chestnut, and all other ornamental deciduous flowering trees and shrubs. Prune them at the roots, to remove all damaged portions, and lessen the shrub in head to a reasonable form, because they are often of straggling growth until brought into form in these places; dig the holes large enough to allow of the roots being spread out, tread them firmly in the ground, and take care that they are put no lower in the soil than they were when last growing; the collar of the root should be even with the surface.

Early Tulips, the most neglected and yet beautiful of spring flowers, should be planted in patches of half-a-dozen, all of one sort; but there are many sorts, rich scarlet,

deep rose, light and dark yellow, white, and many-coloured stripes, may be had in flower at the same time as crocuses, or so immediately after as to form a good succession; these should be planted three inches deep, and a foot from the edge.

Fancy Tulips. — Let all the small offsets, breeders, and outbeds of tulips be planted in the course of this month; plant three inches below the surface, large roots six inches apart every way, and small offsets three inches apart in the row, and the rows six inches from each other. Turn the soil over from the best bed, and look well after grubs and wireworms: towards the end of the month return the soil to the bed, first having placed a layer of decomposed cow-dung two inches thick at the bottom; when lightly thrown in without pressing, and left in a ridge to throw off the water, it may remain to settle.

Half-hardy plants, which it may be desirable to preserve through the winter, such as scarlet Geraniums, Fuchsias, some of the dwarf Lobelias, Calceolarias, and any other subjects of this class, if the weather has permitted them to remain out all this time, should now at once be taken up and potted into pots as small as their roots can be coiled into, a few of the straggling branches removed, and the plants set into a frame, which should be kept rather close for a few days, until they have partially recovered. They should have a thorough watering after being potted, and daily sprinklings afterwards for a fortnight at least, or longer if they do not get established. After they begin to grow, they must have air, gradually increased till they are exposed in the same degree as ordinary greenhouse or frame plants. It is not in general desirable to be overcrowded in winter with these potted-up subjects, but in the case of some of those named, and others which are more easily propagated by division than by any other mode, such plants often prove valuable either for planting as bulky specimens the following year, or sometimes for propagating purposes early in spring. Scarlet Geraniums should always be so preserved.

Hollyhocks may be cut down to within six inches of the ground, and remove all stakes for the winter. If any are to be parted for propagation, shake the earth out of the root, and carefully cut it into as many pieces as are required, taking care that there is a good heart to each piece of root; let these be planted in a store-bed, a foot apart, to grow into strength.

Iris.—This extensive family comprises tuberous and bulbous rooted plants, the former with sword-like foliage, the latter various, some almost like rushes, others like grass. The tuberous-rooted may be parted to increase them this month, the bulbous may be planted. The English varieties of the bulbous-rooted Iris are far more beautiful than the original species. When you part the tuberous-rooted, you have to retain one or more eyes or shoots to each piece of tuber, according to the size you require the plants, or the numbers you want to make; plant them from nine inches to a foot apart every way.

Narcissus.—This is a large and

varied family, all interesting and beautiful, and should be planted in patches of three, all of a kind; for it is a bad plan to mix the colours and sorts—first, on account of the deterioration of the stock; secondly, because they are not so rich in appearance.

Other Bulbs.—We have always considered that, on account of their beauty and season, bulbs in general deserve greater encouragement in English gardens than they ever receive; a border may be made up of bulbs, that vie with the finest productions of the garden. The price may deter some persons from beginning, but all the Lilies, the Scillas, many Ixias, are beautiful in their season; Gladiolus, Hyacinths, and others, some of which we shall mention more particularly next month, are deserving of attention.

Pæonies.—All the plants whose leaves have died down may be taken up and separated if wanted for propagation, but the tubers must be so separated as to leave a good germ to each; but the plant is not handsome until it has spread again a little; so that unless number is wanted, they should not be parted too small. The tree Pæony should not be touched, for the larger the specimen, the better and more beautiful.

Pansies.—Any that are struck and not yet planted out should be disposed of directly, either in store beds or at the proper distances for blooming, or in small pots singly, to be ready for turning out in the spring or changing to larger pots. Potted plants designed for blooming early and under cover should be shifted to larger pots as they fill the small ones with roots, if room is scarce, or placed at once in their blooming pots if you have space to house them.

Perennials of the hardy class, which are liable to suffer from the dampness of the climate if left exposed, should be now taken up, and potted to be preserved in dry airy frames. Of this class are all the Lobelias, which must have no water until spring, and some of the Pentstemons which are evergreen with fleshy leaves liable to decay. As many should be preserved as may be wanted in the following season.

Phloxes.—Those out of bloom may be parted, any late ones that have not begun to die down may remain till they do, but for effect they are better in good-sized patches or clumps, and especially the tall ones. As the foliage turns colour on the blooming stems, cut the stems down close without interfering with the small shoots at the bottom.

Pink-beds may still be made with advantage, but it is even better to do it in September, the plants get a firmer hold in the ground, and resist the frosts and changes better. Pinks in store pots must be kept pretty dry, and must stand on dry bottoms in the frames and pits.

Polyanthuses and Primroses.—Stir the earth between these, so as not to hurt their roots; look well for any stray slugs or snails in their neighbourhood, for no plants offer greater temptation than this fleshy-leaved tribe of plants.

Snowdrops. — The double and single may be planted in any situations where they can be seen

well, for they are but small objects, and would be lost in some places. They ought to be two inches deep, and in patches of a dozen.

Sweet Williams, Wall-flowers, Canterbury Bells, and all the biennials and perennials that are required to bloom in certain places, should be removed now, unless the places are at present occupied by things not yet done with; the sooner all such plants are in their flowering places, the better.

The Orange, White and Martagon Lilies may be removed from one place to another, and if they are to remain a year or two, one good bulb in a place is enough.

Compost for Pansies, Pinks, Carnations, and some other perennials should be light and rich; this may be formed various ways. One part loam, one part leaf mould, one part rotten cow-dung, and one part peat, forms a compost that will grow anything, but especially the above plants, in first rate style.

Liming of ground to get rid of slugs and snails is very effective, but it should be applied only at daybreak, or in the evening, or when a dark cloudy day has brought out these pests from their holes, for every one it touches is destroyed. If spread over the ground when it is dry, and the slugs are in their holes, they will not come out to it; but the first shower of rain spoils it as a remedy, and therefore they are not destroyed.

Shading of flowers is always necessary if they are for exhibition; but the further off the shade is, the better. Flowers covered close are affected in their colour, and this is detrimental to many, especially white and yellow grounds with coloured edges, for the latter, as in dahlias, often disappear altogether, and are always less distinct.

THE ROSE GARDEN.

Gather all the seeds of roses. Go over the summer varieties with a sharp knife. Cut all weakly shoots close into the stem they proceed from, and if it was not done but must be, shorten all the main branches to a foot or so at the most, but six inches will not be too short, that the heads may not hold the wind. Make all fast to their stakes, to stand the rough winds of winter. Dig between roses or round them, but not enough to damage their roots. Remove all suckers from the roots and all branches from the stock, if any have escaped notice and grown during summer.

Cuttings of Roses that have struck root should be potted singly, or if of the hardy sorts, planted out in the beds.

Rosariums may be formed this month, and there is no period of the year more favourable for planting; and although, from the great reduction of the heads which necessarily takes place in pruning, the roots may be reduced a good deal also, there is nothing gained by the operation unless they are damaged in taking up.

Planting.—In each place where a tree is to be planted, dig into the ordinary soil a good spade full of rotten dung and mix it well with the soil in about an eighteen inch circle, and form the hole large enough to allow of the roots being spread out. Let every damaged part of the root be cut clean out, and any very

straggling portions also be removed. Then place the plant in the hole, which must be filled up, and by raising the plant up and down two or three times a little, the earth will get underneath and between the roots, so as to allow of its being trodden over firmly. Then drive a stake into the ground so as to fasten the stem, that it may not sway. Dwarf plants are treated in the same way, but the hole made on a smaller scale, and no stakes required.

Tender Roses should have their branches protected for the winter by a covering of fern. For the dwarf plants this may be stuck into the soil among the plants; for standards it must be tied amongst the branches which form the head, the stock or stem requiring no protection; and when the plants are trained against a wall or trellis, the material should be thinly fixed over them in that position, commencing at bottom, so that the layers may overlap like tiles on a roof. They must not be so thickly covered as to exclude light and air; what may appear a very slight covering indeed, affords a very great amount of protection. The tea-scented, China, and Bourbon classes of roses are those which most require this protection.

THE GREENHOUSE.

This department requires now to be kept as open as possible. All the plants will be better for air if the weather be at all mild; and if the weather be damp, light a fire and open the house to dry it now and then; but if the house be dry and the weather damp, keep all close. Be particular in keeping all kinds of plants clear of dead leaves, and remove all litter and dirt from the shelves. Water must be administered sparingly, that is, seldom; for whenever a plant is watered, the entire soil in the pot must be wetted. Many a plant has been lost by misunderstanding what it wants, and to be directed to be sparing of water was enough to make them give a little instead of a quantity; whereas it should be understood that the soil is to be saturated as completely as at any other season, but much more seldom. For instance, when a plant is growing, it requires the soil to be saturated or filled as it were once a-day, whereas if you are to water sparingly it may be wanted only once a-week. The effect of giving small quantities often, instead of large quantities seldom, is, that in the one case the water reaches an inch down the soil, and all below that, though equally supplied with fibres, is kept dry; while in the other the whole soaks equally all through the pot whenever it is administered. On a judicious watering there is more depends than on anything that a plant requires. No month ought to pass without examining the ball of a plant, by rapping the edge of the pot on the bench so as to turn out the ball of earth into your hand, and then you can see whether it is all moist alike or otherwise, and also whether the roots are getting too much matted round the sides of the pot, for if they are, a shift to a larger sized pot is necessary. Beyond this, the Greenhouse only wants general attention to cleanliness, to a sufficiency of air, and to the efficiency of the drainage.

Calceolarias require much the same treatment as *Cinerarias*.

Chinese Primroses, which should be attaining almost to their blooming size, like to be put in the full light, and they should have plenty of air, in order that the blossoms may come of a rich colour. If they have not been recently shifted, they will probably require repotting to carry them through the winter; and in this case it should be done at once. Great care must be taken with such newly-potted subjects, that they do not get soddened with water.

Chrysanthemums in pots are the better for the shelter of a greenhouse, or even a little forcing, to aid the development of their flowers. When they are taken into a greenhouse at this season for the sake of their blossoms during the following months, it must be seen that they do not in any way damage less hardy plants, which they are apt to do if their decaying parts, especially the parts of the fading flowers, are not sedulously removed.

Cinerarias should be kept growing. Shift them as they require, and if they can be accommodated in a pit, where frost can be warded off, so much the better, until they are nearly in bloom. If not, they must be put on the front shelves in the greenhouse, near the glass.

Fuchsias in pots, will now be getting out of bloom. They may stand exposed to the weather as long as frost keeps off, and even afterwards throughout the daytime, though protected at night. In this way they will become well ripened in the wood, which will throw off the leaves, and continue bare through the winter.

Geraniums continue growing all the winter. If they are wanted for very early blooming, the shoots must not be again topped; but if they are to form good bushy plants to flower at the ordinary season, the young shoots must all be topped as soon as they have grown about a couple of inches in length; and this must be continued for two or three months to come.

Insects.—As soon as the plants are all housed and arranged for the winter, the house should be well fumigated, to destroy whatever insects may be lodged among the plants. Choose a dull cloudy day, or night for this fumigation; and have it done twice on succeeding days, in order that it may be effectual. After this, the plants must be well washed with the syringe or engine, and the extra dampness thus produced carried off by opening the house as much as possible the next mild day, aiding the evaporation, if necessary, by a gentle fire in conjunction with the ventilation.

Many persons find that there is a disagreeable green tint comes on the top of the soil on their potted plants in the houses, and this is generally the fault of the water they use. When this is the case, they had better make an alteration. Rain water is always the best under any circumstances. Every reasonable expense should be cheerfully incurred to save all that can be caught, and none other should be used while a drop is to be had. In greenhouses and hot-houses all the water from the roof should be caught and brought inside, that it may be always of the same temperature.

NOVEMBER.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Alterations.—Remember, every day you protract any proposed alterations, or the making of additions, you run the risk of being foiled by the frost; for when that once sets in, all work of any consequence is stopped until it goes again. Planting of deciduous trees and shrubs should be persevered in till done. Evergreens may be planted out, but will take no harm for a while. All the trenching, digging, making roads and walks, and planting ornamental timber, may go on with all reasonable speed, for any fine day lost is irrecoverable, especially if unfavourable weather should afterwards set in. Wet is as bad as frost, and often does more mischief.

Anemones may be planted in beds or patches, three inches deep, and six in a small patch, to remain there; or six inches apart all over the bed or border; and let the earth be bruised well that covers them.

Auriculas.—Take off the dead leaves, keep the frames clean inside, and give no more water than is necessary. Let them have all the air they can on mild dry days, but when there is any fall of wet, let the glasses be propped, so as to keep off the rain.

Box Edgings.—The whole art of laying down a box edging well, consists in forming the ridge, against which it is to be planted, true, level, and hard; and in cutting the box into small shreds,—not only that a little may go a long way, but that it may be weak enough to obey the pressure of a little earth to keep it home in its place. We have seen box dibbled in, and there are works which recommend it; but there is no way so true, and in all respects perfect, as to form your bed, border, clump, or whatever else you choose to edge with box, the exact figure you want it, by hard treading it on the edge, and putting the soil on until it is quite level, and trodden hard; then cut the soil away from the front, or pit side of it, in a sloping direction, exactly the form you require. The top being level, and the sloping front cut even and ready, put small bits of box close by the side of each other, so that there is no vacancy between them, nor any lapping over each other, pressing the loose earth in front as you go on, to bank the box into its place, which is with the green half-an-inch above the top of the soil; while the patch is afterwards gravelled, so that the gravel comes up on the path side exactly as high as the soil on the other. In digging

the beds afterwards, the gardener must cut sloping away from the box, lest he should damage the plantation of box, and loosen the roots.

Carnations and Picotees.—The health and vigour of these plants depend mainly upon their being kept dry and cool through the winter; not that they must absolutely want water and not have it, but that it should not be given them a day sooner than they want it. Pick off any yellow leaves, and keep the frame clear of weeds and dead leaves, or decaying matter of any kind.

Chrysanthemums in bloom out of doors should have their dead and decaying blooms cut off at once, and the best ones be left to come forward still. In sheltered places on walls, and frequently in the open gardens, this family of flowers form a bright spot in the dreary autumn.

Crocuses, and many other of the smaller bulbs, if not already planted last month, as we directed, should be planted this, and according to the advice given already.

Evergreen and Deciduous Shrubs.—All the layers and suckers should be taken up and cut off, to be planted in nursery beds, or elsewhere, according to your wants. Lay down any branches that are low enough, and can be spared; they only require to have a longish slit, cut not quite half way through, and the under part of the branch; bend this down into the ground, and peg it there an inch or two under the surface. These will be young plants fit to take off the next autumn. All evergreen and deciduous shrubs will thus form new plants; many, however, throw up suckers,—that is to say, branches from their roots,—and if these are dug down to, and part of the root taken up with them, they make plants at once. Many seeds of deciduous plants may be now gathered, and cuttings of all kinds may be taken, though many think the spring quite as good. If there be any straggling branches of the shrubs that can be improved by shortening, do not be afraid of the knife; though care should be taken to spare those branches which show bloom buds, until after the flowering time.

Hardy Climbers may at once be pruned and trained. No general rule for pruning can be given, as the habit of each particular plant must determine the actual operation; but generally prune rather hard, especially in the case of all plants that blossom on the young or current season's growth. Hardy climbers are too often neglected in this respect, and become masses of confusion. If the plant produces its blossoms from the one-year-old wood, be careful to retain a supply of the best-ripened young shoots all over the plant. In training, use small shreds and few nails; but the shreds must not tightly girt the shoots. The shreds are made of narrow strips of cloth, cut into lengths proper for the different sizes of the branches. The pruning of the less hardy sorts must be deferred until the spring.

Herbaceous Plants generally may be parted, if not parted last month, and either placed in the borders or in nursery beds.

Hyacinths in Beds.—There is nothing more striking and beauti-

ful than a well-arranged Hyacinth bed. The colours are various: light and dark blue, light and dark red, white and yellow. Let the arrangement be so that you do not have two of a colour, nor even two of a shade close together. Single and dwarf kinds make the best general bed, and those who have geometrical beds may so contrive them as to have flowers two months before the usual period, by depending on bulbs. Hyacinths, in these beds, must be all of a shade in the same bed; but, if you want effect, you may have the lightest of the reds inwards, the darker ones further out, and the darkest furthest. The same with the blues: there are several shades, and admirably calculated for effect. These, planted in their beds nine inches apart, would leave room between for any thing else to follow, and the Hyacinth bulbs might, on their removal, make room for the third succession of some kind. For instance, Tulips may be planted between the Hyacinths, and the Hyacinths taken up while the Tulips are in flower, may make room for potted Stocks, or potted Nemophila, or for plants of Verbena, which will flower by the time the Tulips are off; and so keep up the bloom of the parterre. Hyacinths in single long beds must be arranged so as that no two of a colour come together.

Newly-planted Trees and shrubs, especially if at all tender, should be mulched; that is, the surface of the soil, to the extent occupied by the roots, and up to the stem, should be covered by a material which will keep frost from penetrating the soil, and thus favour the growth of the recently-disturbed roots. What the covering is, is not material; such as littery straw, moss, peas-haulm, or even sawdust and ashes may be used. It is very important, also, that newly-planted trees should be staked, so as to prevent their being moved to and fro by the wind.

Pansies, in beds, are apt to be disturbed by frosts and thaws; the changes expand the earth, and frequently bare the roots of small plants. To prevent this, you may be at the trouble of covering with mats or litter, in frost, and keeping them uncovered in mild weather; but, unless they are very choice, few take the pains, as they are by no means a tender plant. But they must be set to rights at every thaw, and fixed firm.

Pinks in their beds are apt to be disturbed by worms, cats, frosts, and thaws; they must be examined occasionally, until they are very strongly rooted in the ground, and, where any are disturbed, they must be pressed into their places, with their earth close about them; and clear them of weeds while weeds are small.

Ranunculuses may be planted six inches apart in good earth, well worked, but not mixed with dung recently. A good layer of rotten cowdung may be placed in the bed at a foot deep, but the earth in which the tubers are placed should be loam from rotted turves, or clean loam from a pasture one part, and leaf mould one part, which is about an equivalent; any well-worked earth from a kitchen garden will be well adapted. The easiest way to plant

these autumn-made beds, is to draw drills the length of the bed, three inches deep and six inches apart. You may then place in the tubers with a slight pressure, six inches apart, in the rows. Others draw the drills across the bed, six inches apart; but the easiest is lengthways, and it can make no difference, unless people desire to grow a row of a sort, when it is better to cross the bed, because the sorts are seen distinct when one sort crosses the bed. This does not allude to the fine sorts, which are planted in February, but to the surplus stock required to increase well, and to give early flowers. The fine sorts are not fit to be risked in the ground through the winter.

Shrubberies may be dug now, where this plan is practised; but it should only be done in mixed borders, where flowers are planted. The continued digging of the soil destroys the surface roots, greatly to the detriment of the plants. Clumps entirely occupied by shrubs should show no cut edge of raw earth; if they are on grass, the grass should grow quite under them; and if they are surrounded by gravel, this should be continued beneath their branches.

The Beds and Borders may be dressed out now with dwarf evergreens, in pots, which should be plunged below their rims. Make a diversity of them; and in the geometrical garden there is great room for taste. The variety of foliage is immense, and the smaller the plants, the better the effect, so that there be enough. *Hollies* of varied hues, *Cedars*, *Arbor vitæ*, *Yews*, *Berberis*, *Boxes* varied and green, *Alaternus* striped and plain, and fifty other handsome growing shrubs, which do well in pots, are adapted for this autumn dressing.

The Tulip.—The most important flower that engages the attention of the florist this month, is the tulip. The second week is the latest for planting, if we have our choice; and the arrangement of the bulbs for planting is made in boxes which represent the rows on the bed. Tulips are planted in four-feet wide beds, six inches apart every way; and this gives us seven across the bed. The beds, therefore, among common observers, may be said to consist of seven rows of whatever length the bed may be; but the custom is, to call the seven which go across, the rows; and then the bed is said to consist of so many rows. Thus, a bed twenty-five feet long, should contain fifty rows. The proper manner of arranging the flowers, in these rows of seven, is to have three pairs of flowers, and a centre odd one; and tulips whose natural growth give four different heights are used. Those are called first-row flowers, which are the most dwarf, and mean outside-row flowers, such as the first and seventh; second-row flowers are those something taller, and mean second and sixth; third-row flowers are taller still, and are used for the third and fifth row; and middle, or fourth-row flowers, which are the tallest, are used in the centre. But of all these, first, second, third, and fourth-row flowers, there are three distinct classes, called Roses, Byblomens, and Bizarres. The first have white grounds, with red marks of all shades, from crimson and scarlet

to pale rose or pink; the second have white grounds, with purple marks, from deep purple, almost black, to light lilac or lavender; the third have yellow grounds, with any coloured marks, from nearly black to brown or red. In arranging the flowers, therefore, we should not only have pairs of the same class opposite each other, on the two sides of the centre, but we should have the same flowers—that is, the same varieties—on both sides. One of the oldest rules for planting Tulips, was, to prevent two of a class coming together in a row; therefore the arrangement was thus:—

Ro.	Byb.	Biz.	Ro.	Byb.	Biz.	Ro.
Byb.	Biz.	Ro.	Byb.	Biz.	Ro.	Byb.
Biz.	Ro.	Byb.	Biz.	Ro.	Byb.	Biz.

and so changing from left to right, or right to left, as they pleased, to go through all the bed. Our only objection to this was, that it wanted uniformity. It is true that no two of a class come together all through the bed; but it is equally true that, if you stand at the end, you observe that you have a byblomen on one side next the middle flower, and a bizarre on the other; and thus it runs all through the bed. Our mode of arranging is to have everything uniform; if the first is a rose, the seventh must be; if the second is a bizarre, the sixth must be; and if the third is a byblomen, the fifth should be also. The difference in the arrangement would be thus:—

Ro.	Byb.	Biz.	Ro.	Biz.	Byb.	Ro.
Byb.	Biz.	Ro.	Byb.	Ro.	Biz.	Byb.
Biz.	Ro.	Byb.	Biz.	Byb.	Ro.	Biz.

But those who can afford it, and take great pains with their beds, should go further than this, and have all the flowers paired as to variety, as well as to class; that is, suppose there is Louis XVI. in the centre, the rose on each side might be Clarendon; the next to that, on each side, should be Polyphemus; and the byblomen, on the outsides, Reine de Sheba, or any other named flower of a proper class you please, but both alike, so that all flowers should be grown in duplicate. In forming a bed of Tulips, therefore, you should buy an equal number of first, second, and third row roses, byblomens, and bizarres; and half the number of middle-row roses, byblomens, and bizarres. For instance, say you want a bed of sixty rows, or thirty feet, which is a very pretty and effective length, you must in that case have twenty each of middle-row roses, byblomens, and bizarres, and forty each of each of the other heights, or rows; because, when grown in duplicate, there are two of each to one in the middle. The boxes or drawers in which Tulips are arranged for planting, have seven partitions one way, and no matter what length the other; but they are generally made to hold eight or ten rows. The roots are arranged in these drawers, which are numbered 1, 2, 3, outside, according to the number of rows. When you plant, lower the soil on the bed to three inches lower than you intend it to be when finished; level it, and draw the seven lines one way, six inches apart, and the cross lines the other, six inches apart, by means of stretching a line lengthways quite tight, and pressing it into the soil with the back of the rake, so as to make a

mark; but the cross lines may be made with a straight piece of wood long enough to reach across, pressed into the soil. Where these lines cross, place the Tulips, gently pressing them half their bulk below the surface; then put on the three inches of soil. The bed thus planted will need no further attention. Keep the outer Tulip beds clear of weeds.

Turf may be laid, to form lawns or verges, while the weather continues mild. It cannot be done in frosty weather; neither should the roots (which are towards the outside of the turf, as they are rolled up for removal) be exposed to frost, nor too long to drying winds.

THE ROSE GARDEN.

Planting of Roseries comes on now; and let us recommend those who pretend to have a rose garden to preserve some form and general plan; to make something like a design, and not content themselves with merely putting a rose here and a rose there. If they can do nothing better, let them form a bank of roses each side their single walk, by putting in dwarfs in front, two-feet roses behind, and three-feet or four-feet roses behind them. This is an elegant way of forming a rose garden, without any pretension to novelty, and with every regard to effect. The front, or dwarf roses, must be picked for their slow growth, because many of the freely growing roses would ramble about in all directions, and climb about anything. The Dwarf Crimson, and others of that habit, are proper for the front row, within a foot of the edge. The Standards can be had of any height, but regard must also be had to the habit of the rose, which would be equally out of place if of a rambling kind. Those who supply will always give the proper kinds, if you tell them what they are for. The climbing roses must be well fastened, and a good deal of the loose and superfluous branches cut away, if not already done. Look well after the last month's directions, and attend to all that has not yet been done; indeed, if the last month's affairs were well brought up, there would be little to do; but a good deal of planting is necessarily left for November, from the difficulty of getting all the plants that are required in October. Some are hardly ripe enough to move in October, others are in great demand, but the sooner they are procured and planted the better, when once the leaf falls, or the tree is inclined to rest.

Tender Roses.—Where the tender sorts, such as the Chinas, Tea-scented, Bourbons, &c. have not been protected, it should be attended to before severe cold sets in. The roots should be mulched, and the branches shielded by some such open material as dried fern, or peas-haulm. Rough wicker baskets are sometimes used for this purpose, and they answer well as a covering for the branches; they are set over the plant during the period when protection is necessary. One great advantage attending them is, that they are easily removed and replaced.

THE GREENHOUSE.

The further we get into the winter, the more cautious we

ought to be of watering, and the more air we should give when the weather will permit it. Preserve every thing from damp and dirt; keep the shelves clear of dead leaves, and every now and then brush out all the corners, to get rid of the vermin and their eggs.

Calceolarias.—The young plants require to be growing all the winter, and must therefore be kept regularly watered, and placed beyond the influences of frost. It is not desirable to repot at this season.

Camellias will begin, even at this period, to open a few straggling flowers; or rather, straggling plants among the collection will occasionally bloom. When the branch, on which the flower happens to be, can be spared, let it be cut off with the bloom on it, if wanted, or if preferred in the house, let it come off directly the bloom has decayed. Many plants which could have been advantageously pruned, are allowed to remain, while, if there be a flower-bud on the shoot that should come off, it is such as those that we allude to.

Cinerarias.—The larger plants, or at least the earliest ones, should have had their final shift for blooming; all that remains is to keep them in the full light, and as far as possible free from insects, which in a few days accumulate vastly, if at the first neglected. When the blooms have nearly reached the period of expansion, it is a good plan to give a little manure water, which may be made from soot, mixing the ingredients thoroughly, and applying only the clear liquid, after the subsidence of the solid matter.

Fire-heat.—Great care must be taken to keep frost out; but it is better when it can be done by covering up close, than when it wants fire heat. In hard weather there must be a fire occasionally, and so also in long wet weather, for the house gets damp; in which case light the fires, and when the glass gets up a few degrees, open the top lights to let out the damp. A few hours' firing dries the place, and does everything good, but heat and damp draw the plants too much.

Under the frames of the greenhouse, or rather the stage, is an excellent preserve for almost everything that wants protection from the frost; but there is an objection to the drip which comes from watering the pots. A piece of waterproof calico thrown over them throws off the wet, and forms one of the best means of protecting Dahlias, various tubers not quite hardy, plants that are dormant, such as Dahlias in pots, and many other things.

Frames.—At this season, the cold frames and pits employed for the protection of half-hardy plants, and for sheltering such of the alpines and perennials as need protection, require to be carefully watched, in order to guard against damp—the most insidious enemy of such plants—and to which, owing to the dampness of our climate, they are greatly exposed. The lights must be kept off during all fine weather, and in dry weather, even though it may be rather cold, provided there is not a keen and nipping air; even under such circumstances the frames must not be closed en-

tirely, nor in wet or damp weather; but must be tilted up more or less, to admit of a change of air; the lights being, however, never opened against the wind. The difficulty of admitting as much air as is requisite, under such circumstances, has led to the provision of ventilators in the back and front walls of frames and pits; and these are exceedingly useful contrivances. A thorough airing can be given without so opening them as to admit rain or keen winds. The ventilators are best made in the form of small wooden slides. Of equal importance to plants of the half-hardy class, is the provision of a dry bottom, and the avoiding of spilling any water within the frames during the process of watering. A damp bottom leads to dampness of the atmosphere, and confined dampness of the atmosphere is just what is so fatal to tender plants; hence the advantage of elevating the plants on an open platform *above* the floor, and of providing ventilators to secure a current of air when requisite *beneath* this platform. The plants themselves require to be frequently picked over, to remove all dead or decaying leaves, &c. and to see that the soil continues in an open healthy state—not water-logged, nor moss-bound. Whenever any of the plants start into vigorous growth, as they sometimes will do, and produce branches which are liable to get straggly and out of order, such branches should be topped, and the whole treatment should be directed to maintain the plants stocky, sturdy, and hardy, through the winter months.

Geraniums are growing fast; if any of the branches are shooting too free, pinch off the ends, and in all cases regulate their shape a little, by checking them where they are going out of form.

New Holland Plants.—All the hard-wooded plants which are growing must be well examined, to see that their drainage is clear, and their soil moderately moist. Water seldom, but effectively; and when they have been all watered, shut them up from the air.

Primula sinensis, Chinese Primroses.—The plants of this family are now becoming gay, seedlings are beginning to bloom, and even common things are permitted to remain in the house, because they are flowers at a time when other flowers are scarce; but they may not be of sufficient merit to be worth keeping after they have done. The choice florist will, however, preserve none but good single ones, and propagate them. A stock from choice well-grown kinds is very interesting, and the double ones are really beautiful objects. These must have plenty of water as they bloom, for they absorb a good deal; but want of free draining soon settles them, and they rot and die almost before it is discovered. It is a common thing to see these in forty-eight-sized pots, but they can be grown in one season, from seed, large enough to fairly occupy a size twenty-four, or even a sixteen.

Water.—Never depend on tanks for rain-water under the surface to water plants with, unless it has stood long enough to get the temperature of the house. It chills and does mischief much sooner than is expected, and should always be avoided if possible.

DECEMBER.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Now we arrive at a period when all directions must be conditional. It is in this country as likely to be wet and warm as frosty and snowy, and, which is far more important, to change from one to the other in a few hours. It is necessary, therefore, to make preparations for protecting by some means all that will not bear such great changes, and never to trust a single night to the mild weather continuing. Frequently do we have four-and-twenty hours' frost, and a total change to warm, close, damp weather for days; and *vice versa*, from warm to frost. These changes injure even hardy things, and always disturb small plants, whether it be pinks, pansies, carnations, picotees, small polyanthuses, or primroses; in short, nothing small, however hardy, is secure from being uprooted by the contraction and expansion of the soil, which inevitably accompanies these changes. We have simply, therefore, to make up our minds whether all these things shall take their chance, or we intend to prevent it. In the latter case, we must have hoops and mats, litter, cloth, or some other material to cover them with; in the other, the ground looks neater, for we do not require to have anything laying about for the purpose: we will, however, touch upon various modes of protection. First, then, we will mention—

Dry Litter.—Pease-haulm is the very best of these if well harvested and hardened. It lies much lighter, and endures the wet much longer than any other kind of litter, so that really good pease-haulm will endure three months of wet and changeable weather without becoming close or soft and rotten, but it should always be spread lightly to dry when the weather permits. This should lie all ready between the beds, and be every night spread upon the beds to be protected, and in frost it must not be removed. There should be a sufficient quantity to lay four inches thick on the bed to keep out frost; less than this would not be effective. Straw is the next best, perhaps, but it should be broken so as to lie rather light and loose, and not be used in its straight length, for it would lie too heavy. Tares, hay, and even the long litter of dung are used, but we prefer the first to anything.

Hoops and Mats.—If beds are to be protected with mats, it is requisite to place hoops across the bed, or bent sticks of some kind from side to side, arched over as low as practicable to be clear of the plants,

—say three feet apart from end to end; then tie a straight lath or rod along the tops of the hoops, and one or two lengths on each side. This prevents the mats from falling through, and allows of our throwing them over quickly. Of course the hoops are continued there, but the mats removed every morning except in frost, and sometimes in cold dry winds, which are nearly as destructive. If the frost be kept completely out, all the young plants get on wonderfully, as compared with those that endure the changes.

Transparent Cloth.—This is far superior to matting, inasmuch as the plants never suffer for want of light; and the benefit of this is chiefly felt when a continuance of frost prevents us from removing the covering for a week, sometimes at the end of which time, if under mats or any other dark covering, the plants will have turned yellow, and drawn very much. In pots and frames, which are sometimes not uncovered for weeks, it is of the highest consequence to have light transparent water-proof cloth instead of mats; and the plants under cloth scarcely look the worse for a month's confinement, whereas if dark they would turn completely yellow and weakly, and scarcely recover the effects for months. There are various devices for protecting single plants, the best perhaps that we know of are the

Wicker and Basket Protectors.—These may be made of various forms. The smaller ones are in the form of a bee-hive, and are merely lifted on and off; larger ones are made in two halves, so that they may be put together sideways, and fastened with hooks and eyes to each other. The material of which they are made depends on the quantity of protection required; there are many shrubs, the Magnolias for instance, which are all but hardy when once fairly established, but which while young cannot stand a very hard frost: these ought to be protected until they are seven years established in the place where they are to remain. By having the protectors made in two parts, which have to be applied side-ways, and join evenly, they may be made of any size, and are by no means difficult to put together, nor are they very unwieldy, even if of larger dimensions. Six feet high and four feet through would be not inconvenient to handle, and there are many shrubs which if protected up to that height would require it no longer. Rhododendrons would require them shorter and wider, but they should only be open wicker, like a fowl-basket, because they should be open in mild weather, and such protectors well made would not be unsightly. The mats or cloths need only be thrown over them at nights and on frosty days. The Araucarias, that will stand when once well established, are frequently injured so much in their young days as to scarcely recover at all to become handsome; these therefore especially want protection for the first few years.

Wall Protectors.—Many half-hardy climbers require protection. If mats are placed, that is, hung against the wall, they will do very well for deciduous plants, but for evergreens the material should be impervious to wet, and transparent, to admit light, otherwise

the foliage would be damaged; it should also be closed at the top, bottom, and sides, however loose it may be in the middle.

Other means of protection.—The most complete of all is glass, in various forms, from the common hand-glass—to take off and put on as the changes of weather, or the approach of night or morning, dictate—to the porous pots, greenhouses, and conservatories on the largest scale, in which artificial climates can be commanded at pleasure; because glass excludes no light, and keeps in the natural warmth of the earth it covers; at least, it prevents the escape of the natural warmth except by slow degrees; and if the glass be covered during the hard frost, it is still more preserved. For all greenhouse plants it is desirable to avoid the necessity of making fires, if possible, by covering, to keep in the natural warmth, or, as some people describe it, to keep out the cold, instead of having to use artificial heat. The month of December calls upon us for the greatest caution, as the frost is beyond measure treacherous; we may have the garden at sunset wet, close, and fifteen degrees above frost, and in a short space of time find the open air five degrees below it. Now, this is trying even to many hardy things, for the changes are too rapid. This, however, dictates to us the necessity of always leaving the garden safe,—the litter laid where it is required, the glasses all in their respective places. Precautions against frost should be taken every night as if it were certain before morning.

Uncovering protected Plants.—In mild weather, give everything the benefit of the air and sun; uncover at day-break, that they may lose no day-light.

The routine business of the garden for the four months of November, December, January, and February is utterly dependent on the weather, but the same in similar weather all through. It is impossible to give direct instructions, because it is possible that the frost may defeat us in any one or more of them, in all our intentions. All the duties of the four months might be comprised in two words—cleanliness and protection; but there are certain things continued through all mild weather, and other certain things necessary in all frosty weather. We are writing of out-of-door business. Keep clear of weeds and vermin; dig the ground again as you clear off the decayed flowers; turn out the earth of the flower-beds to sweeten, and frequently turn it over, but especially when it is frozen on the surface. A few particular classes of flowers may be in want of some management.

Annuals that were sown in the autumn for early flowering in the spring, or such as have sprung up, self-sown, in the beds or borders where they can be retained in patches for the sake of their earliness, are the better for some degree of protection in very severe weather. With all such plants it is, moreover, very important to attend to thinning in due time, so that the plants may grow sturdy and strong, and not be drawn up spindly and weak from being over-crowded, which renders them much more susceptible of frost than when they make their growth after being properly thinned. This

thinning is required as early in autumn as the plants become at all thick on the ground, so that they may have the advantage of exposure to all the sun and light which is at that season available. It is these patches, thus thinned out, that we recommend to be protected; and the best means of sheltering them is to stick into the ground about them small pieces of such open spray as spruce-fir branches, or the fronds of the common bracken, cut in summer and dried in readiness; two or three of these pieces, a foot or so in height, placed about a patch of annuals affords a great amount of protection, and if not put too close about them, keep off the light but very little, and do not at all obstruct the circulation of air. The ground about such tender subjects should be frequently hoed in winter, this being done in intervals of dry weather; it helps to keep the soil open and porous about the plants, so that they are less affected by the rains. Wet, it should be remembered, is the chief enemy of the autumn-sown annuals, a great many of which will keep in good health during winter, if they can be kept moderately dry.

Annuals in pots.—Those who are very anxious for an early spring display of blossoms generally take some pains to preserve a few autumn-sown annuals in pots, either sowing for the purpose, or taking up from the borders some of those which are self-sown. They should be planted two, three, or more in a sixty-sized pot, and the pots should be placed in a frame. It is important, at this season, to be very cautious in the application of water; the soil must be thoroughly wetted when they require it, but no water should be spilled on the leaves, nor poured carelessly among the pots. All rain should be excluded by keeping the glass sashes over the plants, tilting them up at the back so as to admit air, and at the same time assist to throw off the water, which is impeded when, as is sometimes the case, the lights are tilted back and front alternately, for the sake of producing a draught of air; it is better during rain to tilt only at the back. In all dry weather, such plants must be quite exposed. Keep them as dry as possible, short of allowing them to droop, and as airy as possible consistent with dryness.

Auriculas.—In any dry weather short of frost, give all the air you can by taking the lights off, but be quite certain about the temperature, because, although they will stand a good hard frost without any apparent injury, the bloom will get checked by a frost if not provided against.

Bulbs in general are grossly mismanaged, and nobody very clearly understands why. Look, however, at the geometrical gardens of England, and although bulbs would keep them in flower all the year, or best part of it, no one sets an example that can be elsewhere followed. They may be dear as compared with some things, but when they can be taken up at any season that they are not growing, there cannot be a question that there are many who spend much more money with less than half the true value being attached to their purchases, and that our gardens would be greatly assisted in the supply

of beauty by a timely addition of something worth notice in the shape of bulbs.

Dahlias.—Occasionally examine the tubers, and if there be any very scarce one which is likely to be wanted in great quantity, pot it at once; also pot any that seem inclined to shrivel or rot, and keep them in the greenhouse or pit free from frost.

Gravel Walks.—When the gravel is soft and spongy, get two sieves, one that will not let a horse-bean through, and the other somewhat larger, that will take away any but one size bigger. Gravel thus cleared of the large and of the small, should be laid on and rolled in every time any wet comes, until the surface is as sound as a stone.

Hyacinths.—The propagation of Hyacinths in Holland is hastened by cutting the bulb in half, horizontally, and offsets are developed in great plenty; all the top halves of the leaves being gone, and the bloom destroyed, the whole vigour of the root goes to multiply the offsets, of which there is one at the base of every leaf, though it is often dormant until excited by driving all the nourishment to it. When a cut Hyacinth of this description is taken up, there are generally some very fine offsets, and the larger of these are mostly ready in another season.

Pansies, Pinks, Picotees, and Carnations, in pots, under glass, must be kept moderately dry—we speak of those in store pots. The Pansies in larger blooming pots should be put in frames by themselves, that they may be kept growing, as the object is the preservation of early blooms, and they must not have a check.

Tulips, and all other flowers in beds, unless perfectly hardy, must be protected with hoops and mats, or litter of some kind, as the ground once frozen to the bulb damages the flower, although it may not destroy it.

THE ROSE GARDEN.

Little more than following up all previous instructions has to be done this month, except that as those instructions comprised planting, removing, and making roses a feature, a few words to impress the leading objects on the mind will not be out of place. Great pains are taken to produce strong growth, and certainly, if size is to govern, the flowers come the more noble, for the increased vigour of the plant; but it is quite certain that in the natural state the brier grows on very questionable soil, and we have frequently seen them dug out of that which seemed exhausted by the roots of thorn or other hedge plants, and was as dry as snuff. Again, we have seen them budded while growing wild, with a view of removing them after the bud was safe, and the growth was as vigorous as could be wished; but these roses suffered much on their ultimate removal, and perfectly convinced the experimentalist that it was a great loss of time. The fact is, that the roots of the brier seek food at a very considerable distance from the trunk of the tree, and it is impossible to avoid losing a good deal; therefore it is necessary, in procuring the briers, to prune the roots within a moderate compass, and to thin off all the branches, so that the briers be-

come so many upright sticks. These planted in good ground recover their roots, because the growth of the stock is limited to two or three single branches to bud on, and by midsummer, or a little after, they will have advanced far enough to bud on. This done, the ends of the branches are cut off, and a very little growth is allowed beyond the bud, and that only while the bud is uniting. After this, the entire growth of the stock is thrown into the bud by taking off all the other shoots as they appear. There has been some difference of opinion as to the treatment of the bud when shooting, and a question is raised, which may as well be discussed here as in the proper month for the operation. The same thing has been mooted as to fruit trees. The bud of a rose if left to itself will grow on a single branch several feet, and unless supported by something, would be assuredly blown out of its place and destroyed. The question is this—Ought the bud to be permitted to waste itself in six feet of wood, which has to be cut all away; or by judiciously stopping it as soon as three or four eyes could be secured, should the strength that would be wasted in six feet to be cut away, be dispersed or distributed in four or five branches towards forming a head? This would save nearly a year; and the only pruning required would be to cut away the smaller weak branches, and shorten the others to two eyes each. But the generality of nurserymen allow the single eye to grow as long as it will, and we have seen them at Mr. Rivers's of Sawbridgeworth, with six or seven feet of sound ripened wood grown from an eye in one season. This cut back to a certain number of eyes makes as many branches the second year; but it has been ascertained that a more commanding head can be formed, and if left unpruned the second season the same number of branches will continue their growth, and the shortening may be left till the next season. When the growth is very strong, which is indicated by the first six inches of a shoot, it may be safely checked by pinching off the end; when it is weakly, let it all grow. Roses in pots and stoves being forced, must be well smoked and syringed, and be changed from smaller to larger pots according as they fill the pots with roots.

THE GREENHOUSE.

The deeper we get into winter, the more care do we require in the greenhouse; the sole attention should be devoted to keeping out wet and frost. Dampness is very fatal if not removed in good time. To prevent dampness, all dead and yellowish leaves should be removed, not only from the plants but also from the shelves and floor; every part of the house must be kept very clean and dry. Cuttings of all the kinds of plants may be taken off and struck, and such as are struck should be potted singly in pots, and treated according to their intended form.

Amaryllids may be examined, and such as indicate growth may be repotted, and set in a common hot-bed.

Azalea indica.—Young plants should be shifted from time to time to larger pots, and seed may

be sown in pans or boxes, or wide-mouthed pots, and placed in the greenhouse.

Bedding-out Plants, whether kept in pits or in the greenhouse, may be put out singly in pots as soon as they strike; and when once established they need have but little water through the winter. The less growth they make, the better; but if they take to growing, remove the tops to strike, so that you double the number of your plants, and improve the original ones by inducing dwarfness and a bushy habit.

Calceolarias require to be carefully kept from the frost, and at the same time should have all the air possible to prevent their becoming drawn. Be careful in watering not to wet the foliage, nor unnecessarily spill the water about the plants; and let it be done in the early part of the day. These attentions are the more necessary in frosty weather than in mild weather, but it is best at this season to be ever on the guard; and they apply as much to all other greenhouse subjects of free habit that are growing more or less at this season, as Cinerarias, Geraniums, &c.

Camellia japonica.—Take cuttings of the single kinds to strike, and form stocks at any time in this and the next month, so long as they have not stinted their growth. Every cutting should have two eyes, one below and one above ground; they will strike with bottom heat without difficulty, though many persons take the pains to have half-an-inch of sand on the top of the ordinary soil, and let the cuttings go through the sand and touch the soil.

Chinese Primroses.—These are rising for bloom, and form a pretty object at this time of the year, when flowers are more than scarce, for it is difficult to produce much variety at Christmas.

Chrysanthemums as they go out of flower should be cut down, but not too close, and the suckers thinned if they are much crowded; and the pots may then be set close at the foot of a wall, where they will get little water, and some shelter, until they are wanted for propagation in early spring. By no means keep them in frames; if the weather becomes very severe, protect the pots with a little loose open litter.

Cinerarias.—These must have plenty of room—fine foliage cannot be retained if the plants stand crowded. Neither must they be suffered to become pot-bound, but should be shifted when they require it, without reference to the season. For winter and early spring blooming, there are no plants more valuable than those in a greenhouse; but plants advancing to bloom must be kept from frost. The least frost spoils them. If a few bright days can be caught, any plants that are nearly ready to open their blossoms may have a watering or two of any weak, clear manure-water, which will tend to heighten and brighten their colours amazingly. Nothing is better for this purpose than water in which soot has been well stirred and allowed to settle till it becomes quite clear.

Climbing Plants.—These require adjusting by cutting out some of the oldest wood and rearranging the young. Some climbers require to be cut down and renewed

altogether, as the plants put forth new growth every year, and die down when they have made their growth perfect. Any of this kind, such for instance as the Ipomœas, some of which grow from bulbs or strong tubers, when they have done their growth for the year, may be cut down, and the plants be placed on shelves, out of the way, to rest until they begin to grow. The Tropæolums need not be urged, but as soon as they begin of themselves to shoot, change their pots to clean ones of a larger size.

Cyclamens, in a growing state, should be put in the full light, and where they will get air, as well as warmth or shelter. They will bear a little extra heat if it can be given them, which will bring forward the blossoms more rapidly than they would progress in the ordinary greenhouse temperature.

Ericas.—The heath tribe are impatient of heat,—that is, artificial heat,—and will for the most part bear a little frost; but the object should be to preserve them from both; they cannot have too much air in mild weather, and it is infinitely better to cover the glass than to apply fire-heat even in frosty weather: on this account pits are better than even a greenhouse for the main stock. The cuttings of Ericas may be taken off to strike whenever the plant is at rest; therefore, at every season of the year some are fit to strike.

Fuchsias should be kept in a nearly dry dormant state, and in any cool place where they will not get much frost. A store-room, or shed, or loft, or cellar, will do, provided these conditions are complied with; they are even not very impatient of frost—not too severe—if they are nearly dry at the root. Cut them close in to a stem, or close down to the soil, before they begin to grow; though the old plants are better destroyed (if not reserved for planting out) as soon as cuttings can be got in spring.

Geraniums may be checked the instant there are two good joints to a shoot; this, however, is to depend upon the form intended for the plant. Whenever the growth has extended as far as it is required in any direction, the ends may be pinched out. Cuttings that have been potted off and filled their pots with roots should be shifted to others of a larger size, and due regard be paid to the form they are growing, with a view to restrain them within proper bounds.

Insects.—The green-fly, or *aphis*, is very liable to increase rapidly on free-growing greenhouse plants at this season, and if unmolested they soon become so numerous as to disfigure the plants, and do considerable damage. Fumigation with tobacco-smoke, or the smoke of tobacco-paper, is the best remedy; two or three successive mild fumigations should be given, rather than one very strong, which is apt to do injury; syringe well afterwards. If the smell of tobacco is an objection, burn cascarilla for a deodorizer.

Rhododendrons, of the hybrid kinds, and well-chosen ones of catawbiense, will begin to swell their buds, but they must not be excited with too much watering, as they will grow into leaves and branches, and their flowers will be blighted.

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