

GARDENING

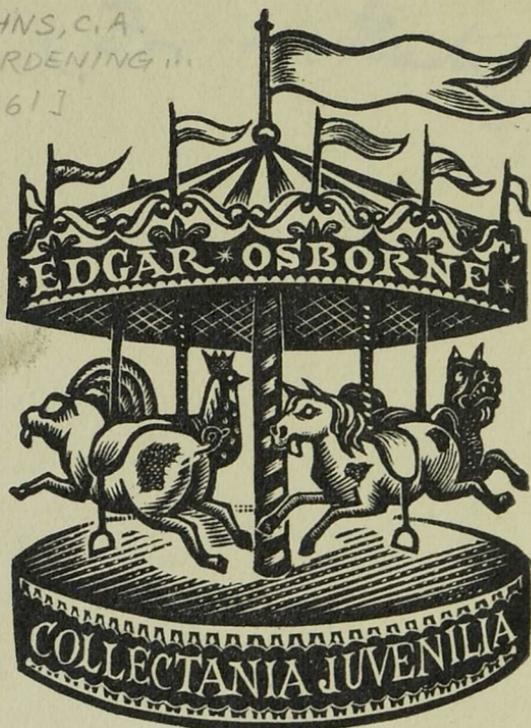


FOR CHILDREN

Bertha Caroline Allen

Christmas 1862

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GARDENING FOR CHILDREN.

EDITED BY THE

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PREFACE.

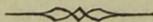
THIS little volume, though addressed to children, and consequently written in simple language, contains Instructions in Practical Gardening which will be found worthy of the attention of any one who, for the first time in his life, finds himself possessed of a small piece of ground convertible into a garden, but does not know how to set to work. The operations described are all of the simplest kind, yet necessary in every garden: the plants recommended to be grown are easy of culture, and at the same time among the most

eligible known, either for ornament or use. The Author has grounds for believing that he has treated the subject in such a way that parents and children may study his little book together, the one finding in gardening a relaxation from severer employments, the other a charming amusement ; both having, what is rare in the joint occupations of old and young, a common object of interest, pursued together with an equal prospect of success.

ILLUSTRATIONS.

| PAGE | PAGE |
|-----------------------------------|---------------------------------|
| SNAPDRAGON 21 | CANARY-FLOWER 83 |
| PHLOX CRASSIFOLIA 24 | ZINNIA 85 |
| CHRYSANTHEMUM 26 | AUSTRIAN BRIAR 106 |
| MANY-LEAVED LUPINE 28 | FUCHSIA 107 |
| COLUMBINE 30 | CUTTINGS 117 |
| BEE-LARKSPUR 31 | LAYERS 118 |
| SCARLET SALVIA 33 | DAPHNE INDICA 120 |
| PENTSTEMON 34 | YELLOW WINTER JASMINE . . . 122 |
| DIELYTRA SPECTABILIS 36 | CHRISTMAS ROSE 123 |
| POLYANTHUS 38 | CROCUS 126 |
| OXLIP 40 | HYACINTH 130 |
| HEPATICA 42 | NARCISSUS 132 |
| PANSY, OR HEARTSEASE 44 | STAR OF BETHLEHEM 135 |
| THRIET 47 | YELLOW GAGEA 136 |
| VIOLET 52 | SOW-THISTLE 166 |
| WALLFLOWER 56 | FIELD CONVULVULUS 172 |
| SWEET WILLIAM 57 | BRYONY 175 |
| CANTERBURY BELL 60 | SEED 197 |
| NEMOPHILA 68 | LEAVES 199 |
| DWARF LUPINE 70 | BUD 201 |
| CHINA ASTER 73 | CALYX 202 |
| CONVOLVULUS MINOR 75 | PETALS AND STAMEN 203 |
| COREOPSIS TINCTORIA 79 | PISTIL 204 |
| DELPHINIUM FORMOSUM 81 | |

GARDENING FOR CHILDREN.



“PAPA,” said little Mary Miller to her father, one bright morning towards the end of March, “you promised us last winter that when the fine spring weather was come, you would give us something to do in the open air which we should like very much, and which would be at the same time healthy and useful. It is a beautiful day to-day, and we are very anxious to be set to work at once.”

“Oh, yes, papa!” joined in George and his younger sister, “pray let us begin this

morning; we should so like to have something to do out of doors that is not playing."

"I am quite ready," replied Mr. Miller, "and am very glad to find you so disposed to be industrious. Come with me into the garden, and on our way I will tell you a story about an old, and a very kind friend of yours."

The children were not long in getting ready, and with smiling faces they crowded round their father, who began as follows:—

One evening in October, a little boy was sitting with his father and mother, busily occupied in picking caraway seeds out of some biscuits which had been given him for his evening's meal. Willy had spent the afternoon in the garden, and had been greatly pleased at hearing that the little black shining things which his father had

been so carefully collecting from various kinds of plants in his garden, were to be sown next Spring in the ground, and that they would soon grow to plants exactly like those from which they were taken. Although Willy was very hungry with the exertion of running after his father many times round the garden, it was very clear that he was thinking of something besides his meal. Presently he looked up with an air of great satisfaction, and said, "Look, mamma, what a lot of seeds I have got!"

"Well, Willy, and what are you going to do with them?"

"Oh, papa has given me a little garden for my own, and when the right time comes, I shall sow them in the ground; and then they will grow up into plants, and I shall be able to pick from them as many caraway biscuits as ever I like!"

This was Willy's first gardening scheme, and, as you may suppose, not a very successful one; but, all in good time, some mustard and cress seed was given to him, which he sowed in his own garden. This, when it was grown up to salad, he cut with his own hands; and when it was sent to table, he declared, in spite of the burning taste which made his eyes water, that it was very nice.

Willy is now grown up to be a man, and knows a great deal about gardens, and trees, and flowers; but he has often told me that although he believes the love of Nature was implanted in him by God, yet he feels persuaded that it was greatly fostered by the means which his father employed to promote in him a taste for gardening. If this were the case, his little garden was productive indeed, for it not only supplied him with salads and nosegays in his boyish days, but fur-

nished him throughout his life with an occupation which, while it has proved a constant source of enjoyment, has taught him to look into and admire the very humblest of God's works.

As I entirely agree with my friend Willy in thinking the occupation of gardening calculated to promote health, to teach habits of order and neatness, to foster the love of Nature, which is instinctive in man, to improve the thinking and reasoning powers of the mind, and, besides all this, to furnish you with an amusement which will become more delightful every year that you live—I have marked out a piece of ground for each of you, which you may call your own. All the plots are equally sunny and sheltered from the wind; the soil is good, and prepared for the reception of seeds and most of the common plants which you would like to

grow. I will furnish you all with seeds, roots, and cuttings, and will give you full directions for growing them ; but, remember, you must do all the work yourselves. Here are sets of tools, each marked with your initials ; you may wear them out if you will, but if any are lost, you must replace them at your own expense, and I shall impose a fine on every one who leaves work without putting them carefully back into the tool-house.

THE GARDENERS AT WORK.

MR. MILLER lived quite in the country, miles distant from the market-town; a garden, therefore, was to him not merely a luxury, but a necessity. Had he not grown his own vegetables, he could rarely have got any; for farmers do not find it worth their while to grow garden vegetables for sale, and cottagers do not often have gardens large enough to do more than supply their own wants. Too many, alas! of the latter class spend the time which they might profitably and healthfully devote to the cultivation of their little plots of ground to gossiping, idle sauntering, or worse. In the parish of Southbourne no one of the villagers could

excuse his idleness on the plea that he had no garden, for every one who had not a garden attached to his cottage might, for five shillings a year, rent a piece of good garden land sufficient to supply his family with vegetables all the year round. A number of such pieces of ground (allotments they are called) were marked off in a field not far from Mr. Miller's house, and the children were always highly delighted to accompany their father when he went to inspect them. Once a year, too, in October, the allotment tenants exhibited in the National School-room the finest vegetables they could show, when prizes were awarded for the best, and sums of money were also given to those who kept their ground in the best order during the past year.

Mr. Miller's own garden was always a pattern of neatness, and he took great pains

to find out what new sorts of vegetables were the most profitable to grow, in order that he might recommend them for cultivation in the allotments. His flowers, too, though not perhaps of the rarest and most expensive kind, were always well grown, and so arranged in the beds as to afford the most agreeable contrasts of colour. That part of it which was nearest to the house was laid out as a grass plot, with small beds cut out here and there, and with standard roses at intervals rising from the grass.

In damp situations it is usual to make such beds higher in the middle, and to slope them gradually to the level of the grass; but the Southbourne soil being remarkably dry, the beds were not at all raised, so that when rain fell none of it ran off, but was absorbed by the soil at once. From this flower-garden a long grass walk led to the

orchard, and beyond this again was a thick oak wood. On either side of the grass walk was an old-fashioned bower, about six feet broad, separated from the vegetable garden by a hedge of espalier apple-trees, and thickly planted with flowering shrubs, hollyhocks, peonies, roses, foxgloves, sweet-williams, pinks, polyanthus, crocuses, and many other sorts of showy flowers, forming in summer a bank of various colours, and shutting out from the sight the beds of vegetables which lay beyond. The apple-trees were too much shaded by the tall flowering plants to be very productive, but they presented a very lively appearance in May, while in blossom; they took up but little room, and the few apples which they did bear were of good sorts, and were prized accordingly. This walk had been recently extended, and it was a piece of the ground

which had been just taken in that Mr. Miller designed for the children.

The operation of digging being too laborious for them, Mr. Miller had himself, in the previous fall of the year, dug it over for them, though not intending that they should plant anything in it until the succeeding spring.

The advantages of partially preparing ground so long before it is wanted, he thus pointed out to the children before they set to work:—

“Do you recollect seeing me turning up this piece of ground last November?”

“Yes, papa,” said Mary; “it was then covered with turf, and you turned over each spadeful so that the grass was downwards.”

“Well, and what do you suppose is become of the grass?”

“I suppose it will grow up again when the warm weather comes.”

“If that be the case, I am afraid you will have a very weedy garden. No; by burying the leaves and stems of the grass, I shut them out from light and air, without which few plants can live for any length of time, and the consequence is, that what was green turf is now quite dead, and is already beginning to rot, and will by-and-by serve as manure for whatever plants you may put in.”

“But are the roots dead as well as the leaves, papa?”

“Most of them are, I have no doubt, for leaves are no less necessary to keep roots in health than roots are to leaves. There may be a few creeping roots of couch-grass, which will bear rough treatment and make an effort to shoot again. These you must watch for, and dig them up as soon as they appear. You saw, too, that I left the ground

very rough. That I did, not to save myself trouble, as you perhaps fancied, but in order to expose as large a surface as possible to the weather. The rains of December sank into the soil, and when the frost came, it bound all together into a hard mass. But see what has been the effect of the thaw. Those clods which were, last autumn, lumps of solid clay are now so crumbly that by just drawing a rake over the surface they fall to pieces, affording a light, porous soil, through which rain and air can easily penetrate to the roots of any plants that you may put in. Your seeds, too, if sown here will, when they begin to grow, send down their tender roots readily through this porous earth. But if I had waited till winter had passed before I dug up the ground, I should have had to cut the clods to pieces with my spade, and with all my pains I should not

have done it half so well as the frost has done it for me. I heard you complaining a few weeks since how hard it was for the farmers that they could not work in the fields during the frost, and, consequently, lost a great deal of time. You may see for yourself how wisely and truly the Psalmist considered frost and snow as God's messengers, 'fulfilling His word.' While the farmer was sent by frost to his indoor occupations, the Providence of God was employing the same frost to prepare his fields for the reception of the spring crops. And you will know too, now, why those fields which are intended to be sown in spring are left all the winter rough and unsightly. But you must now set to work with your rakes and make your pieces of ground as smooth as you can, bringing it everywhere to the same level with the rest of the border. All

large stones and pieces of root which you find must be collected into your baskets and carried to the rubbish heap. For as your gardens are to be a continuation of mine, there must be no perceptible difference, and you must allow no litter to remain either on the bed or the pathway.”

The rakes were speedily in motion, and the children wished to know before their father left them what they were to do when all had been made smooth and neat. This question Mr. Miller, however, declined answering for the present, assuring them that they had quite work enough on their hands to occupy them for all their spare time that day. And it proved that he was right. Mary's hands, though protected by gloves, began to get sore before she had finished raking off the stones and roots. Then she went over the bed once more to make it

level; but to do this was not so easy as it looked. With all her pains there would be a ridge sticking up in some part of the bed. If she raked it away, it appeared somewhere else; then one side was found to be higher than the other, and had to be levelled. Sometimes, when she was nearly satisfied, the rake would strike against a large stone, or catch in a long tangled root, and when each of these was in its turn removed, the hole from which they had been taken had to be filled up with earth from the neighbourhood, and the level thus destroyed had to be made good again. At length, however, the task was completed to her satisfaction, and she moved on to inspect the workmanship of her brother and sister. George was in great trouble; he had buried his rake too deep in the ground, and had drawn so much of the earth, stones, roots, and all to the front of

the bed that the back part resembled a trench ; and little Lucy had ornamented her plot with so many hills and dales that it would have served for a model, not very accurate certainly, of Switzerland. A little advice, founded on the experience she had gained on her own ground, and a helping hand, first with one and then with the other, in course of time reduced all the gardens to good order. The refuse was now carried to the rubbish heap, the tools put away, and the first day's gardening was over.

BORDER PLANTS.

“I HAVE been looking at your gardens, children,” said Mr. Miller, next day, “and find that they are ready to receive plants; so, if you will bring each a basket, I will give you first some of the taller perennials, which you must set at the back of the border.”

“Thank you, papa; but please to tell us what perennials are. Are they a kind of flower?”

“Perennials,” said Mr. Miller, “are plants which last for an indefinite number of years. Some are trees, such as the oak and elm; some shrubs, as the rose and snowberry; and some herbaceous, as the dahlia and carnation.

“But, papa, I thought that dahlias died in the winter. Did not the early frost last October kill your dahlias?” asked Mary.

“The frost killed the leaves and flowers, but not the roots. The roots were taken up and stowed away out of the reach of frost, and will be soon planted out again to make new plants. You may say, if you will, that there are two sorts of herbaceous perennials, those which, like the dahlia and many others, die down to the ground, leaving only withered stems to show their place, and those which, like the hollyhock and carnation, retain leaves during the winter. Many of both kinds will admit of having their roots divided in winter or spring, and each piece will form a separate plant, and flower in the following summer. They should not be divided when in flower, or even in full leaf, or they will perhaps die.

PERENNIALS.

THE Perennials which I have selected as best adapted to your gardens are such as do not require to be disturbed oftener than once in three or four years, and which, besides bearing a handsome bloom, are well-shaped hardy plants. Those that I have procured for you are strong plants, which will flower in the present season.

SNAPDRAGON.

This singular flower is remarkable for the resemblance which it bears to the gaping mouth of the fabulous monster from which it derives its name. The plant when full-



SNAPDRAGON.

grown forms a bushy herb, ornamented with spikes of variously-coloured flowers, the white striped with crimson being the handsomest. I have consequently selected this variety for you. It will continue flowering throughout the summer, and you may propagate it by cuttings of the little shoots.

CHINESE HOLLYHOCKS.

These are tall and stately plants, well adapted for the back of your border. They are of various colours, white, yellow, and every shade of red, some single and some double. They resemble the common hollyhock in all respects, except that they do not exceed the height of five feet. They should be raised from seed, as the roots are liable to be killed by frost and excessive damp. They flower the second year after sowing;

but if you prefer retaining the same sorts, you can make cuttings of them, and they will strike readily under a hand-glass.

PHLOX OMNIFLORA.

Many varieties of this showy plant have been raised by florists during the last few years, all of which are more or less pretty. I prefer the white ones myself, as they are in perfection at a time when flowers of a pure white are much needed. I shall give you in autumn some plants of phlox crassifolia, a humble plant, with showy red flowers, well adapted either for a bed or the edge of a border. But this ought to be thoroughly established in the ground before winter, as it flowers in early spring. A border of these, mixed with polyanthus, primroses, cowslips, and double daisies, is very showy.



PHLOX CRASSIFOLIA.

CHRYSANTHEMUM.

There are two leading varieties of chrysanthemum, the large flowered and pompone. Of each of these there is a great number of sub-varieties, with red and yellow flowers of many shades, rose-coloured and white. The pompones are the freest bloomers, but the others are, I think, the most beautiful.

No plant is more easily propagated than this, and few flowers are more ornamental, as it is in perfection when almost everything else has done flowering. I will separate with my garden-knife a last year's stem with a portion of root attached to it: plant it anywhere in good soil, it will soon push up several green shoots, the tops of which you should cut off in April or May, in order to produce a bushy habit of growth; and if you would like to have

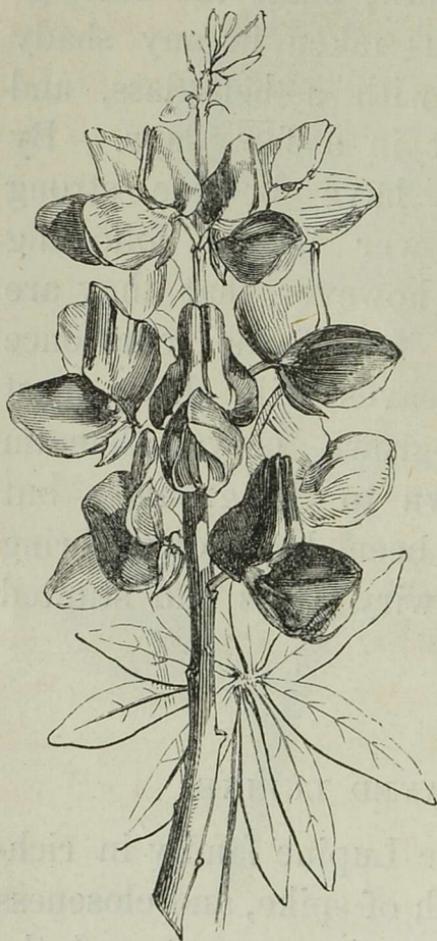


CHRYSANTHEMUM.

plants for your window, plant the cuttings which you have thus taken in any shady place, cover them with a bell-glass, and they will take root in a few days. By October they will have become strong plants, and will flower in the following month. Take care, however, that they are frequently watered; for, if the roots once become dry, the leaves will droop past recovery. A well-grown chrysanthemum should be leafy down to the ground; but those which have been kept dry during summer have long, wiry stems and stunted flowers.

MANY-LEAVED LUPINE.

This excels all the Lupine family in richness of colour, length of spike, and closeness of bloom. The plant is compact, and the



foliage elegant. The flowers vary in colour, from light to deep blue; while others are of a pure white. The plants grow two or three feet high, bloom the first year after sowing, and will soon spread into larger plants, with an increased produce of flowers every succeeding season. It is now common, but it does not the less on that account

deserve a place in your garden. Another recommendation is, its being remarkably hardy. It flowers all the summer ; and although the winter frosts kill it down to the ground, the first gleam of spring recalls it to vigorous life, and its highly-ornamental foliage is attractive long before it shows its flower-buds.

COLUMBINE.

This plant is as elegant as the Lupine just mentioned. The bloom of the very double ones is as rich as it is beautiful, consisting of many horn-shaped florets, which have so quaint an appearance that they almost remind us of an old-fashioned quilled bonnet. Its colours are dark and light blue, dark and light pink, blue and white mixed, and pink and white. Seeds should be sown in May to bloom well the following year.



COLUMBINE.

DOUBLE BEE-LARK-
SPUR.

A noble plant, growing three feet high and upwards, and bearing a long branched spike of the most intensely-vivid blue flowers, which are of dazzling richness.

Of this I shall give you a plant each, and a stately appearance it will make when it has been established a season. This will not bear seeds, so that you will be only able to propagate it by dividing its root.



SALVIA FULGENS.—SALVIA PATENS.

I will give you in May a plant of each of these: the first, a tall, bushy plant, with large flowers of a dazzling scarlet; the second, of a more slender habit, but with equally large flowers of an intense blue. These, with a plant of *calceolaria amplexicaulis*, which bears numerous flowers of a clear lemon-yellow colour, should be planted so as to form a group, when their decided hues form a beautiful contrast. But as these are all tender, we must be indebted for them to the hot-bed where I am now striking cuttings.

In front of the taller plants which I have already given you, you may plant, at distances of about eighteen inches or two feet, the following:—



SCARLET SALVIA.



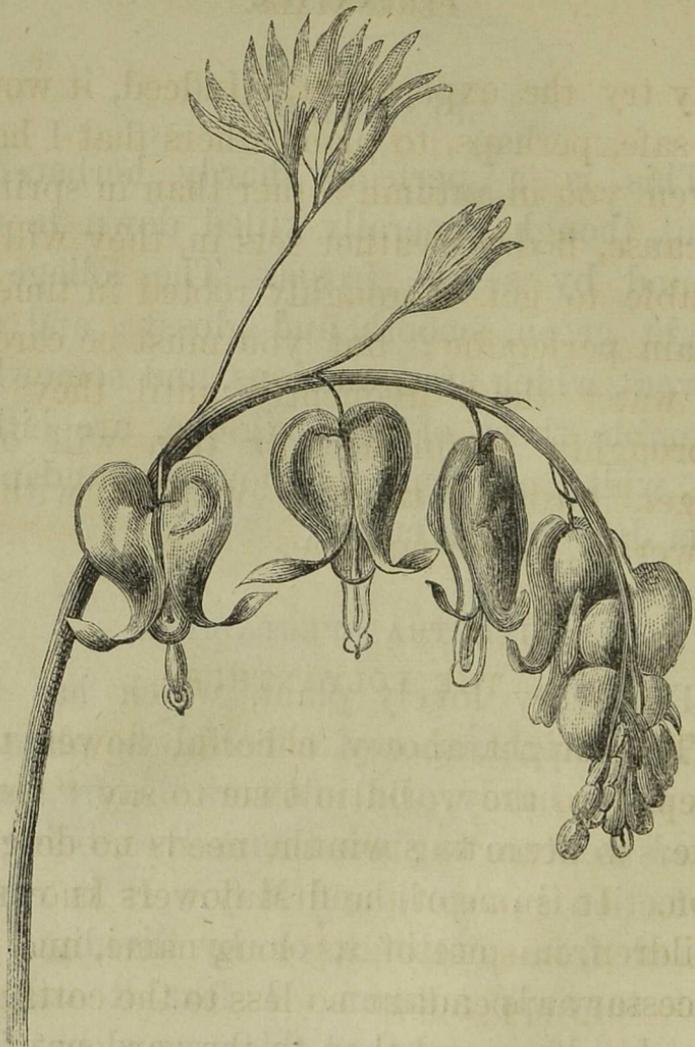
PENTSTEMON.

PENTSTEMON.

This is a perfectly hardy herbaceous plant, though generally killed down to the ground by severe frosts. The foliage is bright green, smooth, and glossy; and the flowers, which are numerous, and somewhat resemble those of the foxglove, are either red, white, or purple. It flowers abundantly from July to November.

DIELYTRA SPECTABILIS.

This very lovely plant, which has the delicate appearance of a hot-house plant, is not only hardy, but flowers before most others venture to show themselves, being in perfection in April and May. It is easily reared from cuttings, or by dividing the root towards autumn. I fear it will be retarded by removal at this season, but you



DIELYTRA SPECTABILIS.

may try the experiment. Indeed, it would be safe, perhaps, to plant others that I have given you in autumn rather than in spring; because, if dry weather sets in, they will be unable to get thoroughly rooted in time to attain perfection; but you must be careful to water them frequently until they are thoroughly established, or they will only linger through the hot weather without flowering, or perhaps die.

THE POLYANTHUS.

This bright, showy, cheerful flower, that peeps into the world in time to say "Good-bye" to departing winter, needs no description. It is one of the first flowers known to children, in spite of its long name, and is a necessary appendage no less to the cottager's wee bit of ground than to the gardens of the

wealthy. Though it is rather late to transplant the Polyanthus, yet by taking care



that the roots are furnished with a good ball of earth, and that, after planting, the soil is not allowed to grow dry, you will stand some chance of success.

The proper way to treat it is to divide the root early in autumn, and to plant the pieces where they are to remain during the winter and to flower next spring. But I

will give you, by-and-by, some seeds which you may sow in July. Transplant the seedlings when they have made five or six leaves,

and by the following spring they will be strong flowering plants. In a large bed of seedlings, very few will be what florists call good flowers. Some probably will resemble the wild cowslip, some the oxlip, and some the primrose; but you will have a great variety of colours; and any which you do not like, you can weed out and throw away, reserving the best, which you may multiply to any extent by dividing the roots. Double Polyanthuses and Siberian primroses do not bear seeds, and can only be propagated by dividing the roots. The auricula, which is a kind of primrose, must be treated in the same way.

OXLIP.

Among the wild flowers which you will do well to transplant into your garden is the Oxlip,—a very pretty plant, with yellow



OXLIP.

flowers and leaves like those of the primrose. It requires the same treatment as the polyanthus, and is in perfection at the same season.

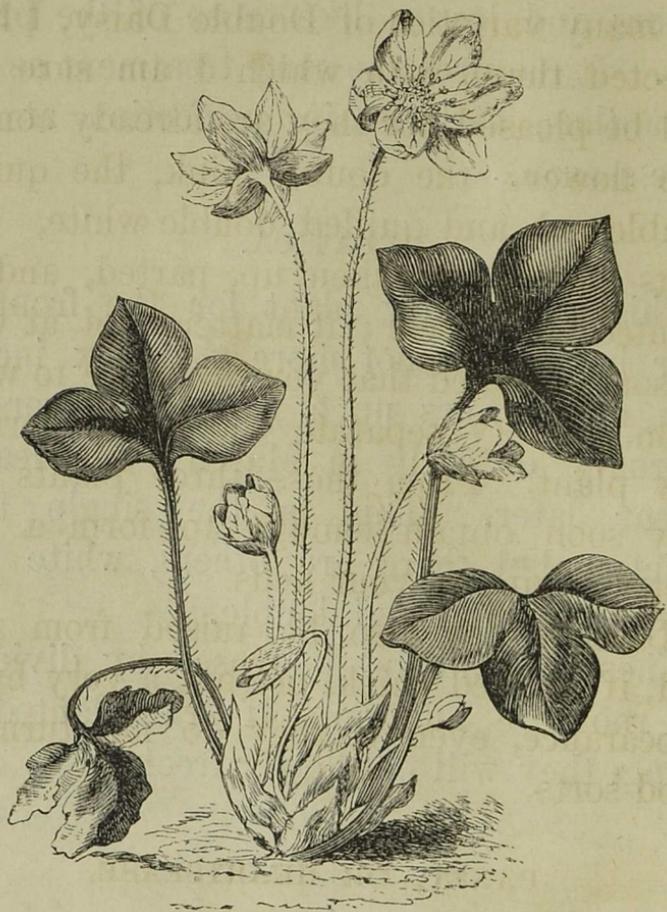
HEPATICA.

This is a pretty plant for the front of your bed; it is not more than six inches high, and throws up a mass of flowers in February or early in March; the leaves appear later. This is the single blue variety; but there are others, white and pink, both single and double.

These should be increased by dividing the roots in autumn. If transplanted in spring, they will not flower freely.

DOUBLE DAISY.

There are two or three varieties of the Daisy with double flowers. From among



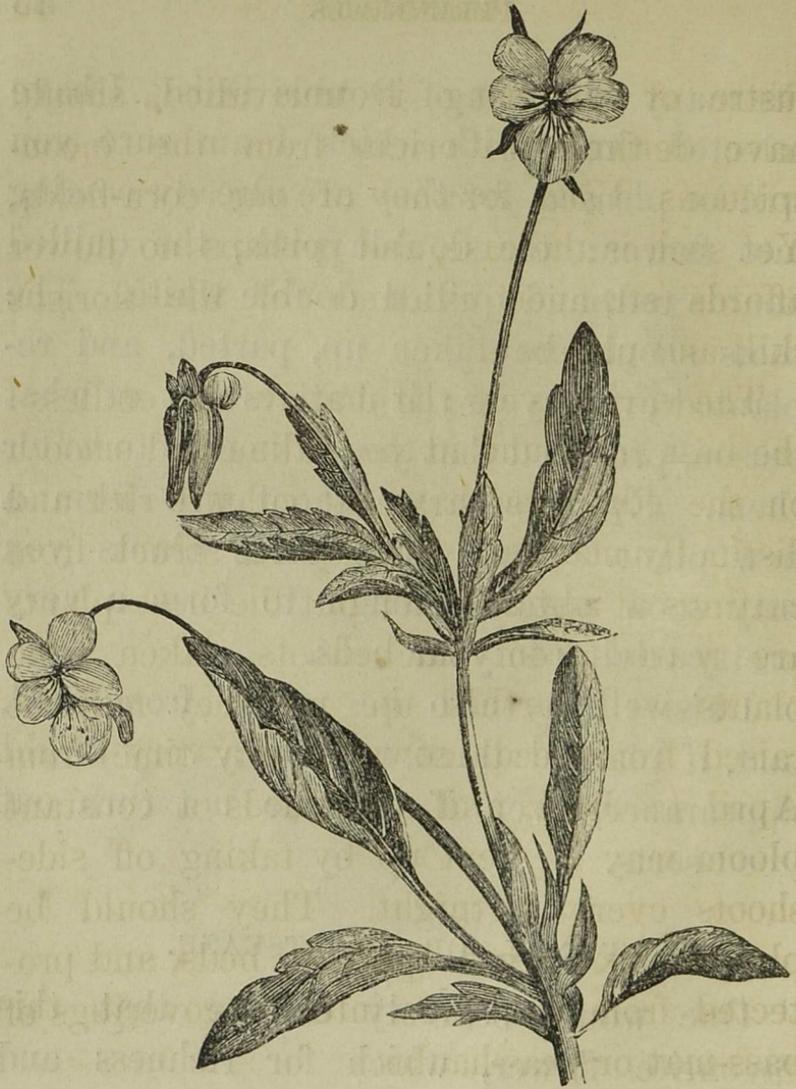
HEPATICA.

the many varieties of Double Daisy, I have selected three, with which I am sure you will be pleased, for they are already coming into flower: the double pink, the quilled double red, and quilled double white. The roots should be taken up, parted, and replanted every year; it matters not at what season, provided that you take care to water them. Every separate shoot will form a new plant. From these three plants you may soon obtain enough to form a very pretty edging to your beds.

Daisies may also be raised from seed, and, if planted thick, present a very bright appearance, even if they do not turn out good sorts.

PANSY, OR HEARTSEASE.

One would scarcely believe that this favourite flower, which for richness and



PANSY, OR HEARTSEASE.

lustre of colouring is unrivalled, should have derived its origin from the inconspicuous *Viola tricolor* of our corn-fields. Yet such is the case, and perhaps no flower affords stronger evidence of the florist's skill and patience.

The varieties of the Pansy are endless: the best are round in the outline and smooth on the edge, and have the colours rich and distinctly marked. It may be struck from cuttings at any season; but the best plants are reared from side shoots, taken from plants well earthed up; or they may be raised from seeds sown at any time from April to June, and afterwards a constant bloom may be kept up by taking off side-shoots every fortnight. They should be planted six inches apart, in beds, and protected from frost in winter by coverings of bass-mat or peas-haulm.

THRIFT.

This common ornament of most parts of the sea-coast of Britain derives its name from its *thriving* in nearly all situations. In a wild state, it is often met with high up in the mountains, and is not unfrequently employed to form a turfy edging to flower-beds in gardens. The flowers are rose-coloured, and are followed by seeds which are remarkable for being crowned by a glossy transparent border, which is scarcely less pretty than the flower itself. It is propagated by division.

PINK.

Of this fragrant flower, which is a great favourite with florists, I have procured for you two varieties. They will not require much attention if you plant them properly ;



THRIFT.

and you can easily propagate them by cuttings of the young shoots taken in June, or by layers made in the same month.

DAHLIA.

Towards the latter end of May, you may plant out the Dahlia,—a flower which, though hardy enough in the autumn, is liable to have its young shoots nipped so late as April. Turn the ball of earth out of the pot in which it has been standing in the greenhouse, make a hole in the ground with your trowel to receive it, cover in and press the earth gently around it, and give the plant some water, in order to settle the earth about the fibres. As the Dahlia grows fast, you should drive a good stake into the ground close to the plant; and to this it must be tied as it advances, but not so tight but

that as it grows it may push up the cord, and that the main branch may not be checked or bent in its growth. After a while it will require other stakes to fasten its branches to, so that the wind may not blow the flowers one against another, nor allow the branches to be injured by chafing.

After the dahlia has done flowering, the roots should be taken up and stored away in a dry and tolerably cool place until the following May. Each root may then be divided into as many plants as there are tubers, provided that each have a portion of stem attached to it. It may also be propagated by cuttings.

ANEMONE.

No border can be said to be completely stocked without a due proportion of Anemones. The dry roots should be planted

early in autumn, when they will flower in the following April and May. Some people take them up as soon as they have done flowering, and store them away; but they thrive much better if allowed to remain in the ground undisturbed. There are many sorts, and endless varieties of colour. Some are double, and many persons prefer these; but, in my opinion, the single scarlet are the most beautiful.

AZURE FORGET-ME-NOT.

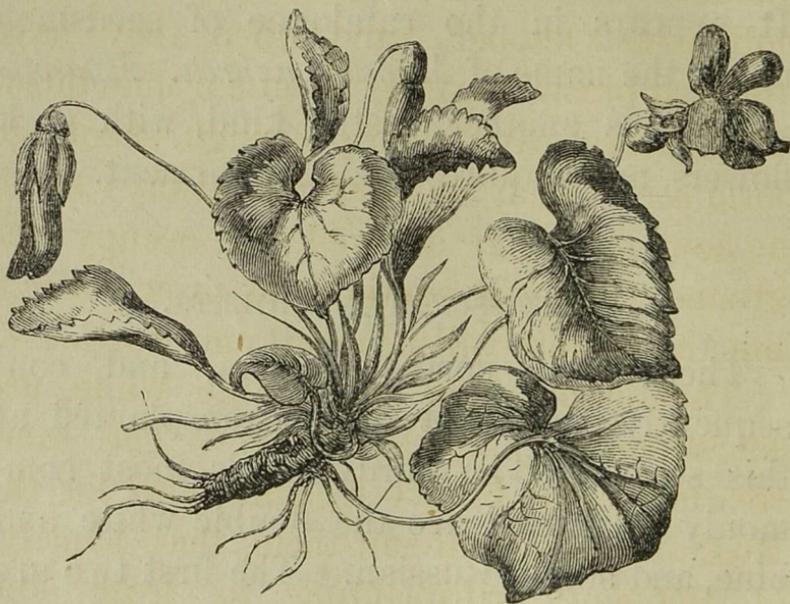
This is one of the prettiest additions that has been made to our hardy perennials for a long time. It may be raised from seed sown in April, and transplanted at intervals of a foot. In the course of the summer it will form an edging with numerous flowers, differing in no respect from those of the true

Forget-me-not (*Myosótis palustris*), over which it has this advantage, that it thrives in ordinary dry soil. It may also be propagated as readily as the daisy by division. It appears in the catalogue of seedsmen under the name of *Myosótis azúrea*. *Myosótis Azórica* is another pretty kind, with dark flowers, and requires similar treatment.

SWEET-SCENTED VIOLETS.

These are spring flowers, and consequently ought not to be transplanted at this season. The hardy kinds most commonly cultivated are the double white and blue, and single Russian. The first two are perhaps the most beautiful, but the last is the most valuable, because its spring, if I may so say, begins in autumn, is interrupted by winter, and is renewed on the departure

of frost. In mild seasons they will even continue in flower during the whole of winter. The treatment which will insure



you abundance of bloom from these is the following:—Prepare a bed, composed of light, rich soil, and in rainy weather, in

summer, plant in it, not less than a foot apart, the small, vigorous shoots which you will find in abundance springing from old plants. They will begin to flower in the following October; and when they have finished blooming, take them up and throw them away, saving only enough shoots to form a new bed, which should always be in a new spot. If allowed to occupy the ground, they will continue to grow indeed, but the flowers will be small and worthless.

The double blue and double white are sometimes shy of blooming. The same treatment that I have recommended for the Russian violets will suit them, that, namely, of frequent transplanting to fresh soil. Neapolitan violets, with double lilac flowers, may be made to bloom in winter by potting them in spring, and taking them into the house early in autumn.

BIENNIALS.

THESE are plants which, as their name denotes, last only two years, producing in the first year leaves only, and in the second flowers also. Familiar examples of these occur among our native plants in the foxglove and great-mullein, or velvet-dock, as it is sometimes called, the broad leaves of which are conspicuous even in mid-winter. A handsome bed of foxgloves may be formed by rooting out young plants from the hedges in autumn, and transferring them to the garden, when they will require no care or particular treatment. But a better plan still is to procure from a seedsman a packet of mixed seed ; you will then have not only the common purple variety, but some pure

white, others white variously spotted, and many shades of pink and rose-coloured. When they have passed their prime, they may be thrown away to make room for autumn-flowering plants, which should be kept in reserve in pots.

WALLFLOWER.

The Wallflower is one of the earliest, the most fragrant, and, therefore, the most welcome of our spring flowers. You should sow them in July and August, in a spot where they may grow for a few weeks without being disturbed, and afterwards plant them out where they are to bloom the next year; or else transplant them while they are young to a nursery-bed where they may grow stronger, and be, late in the autumn, removed to their final destination.



When these have bloomed, they may be thrown away, and the supply kept up by later sown ones; for, although biennials can be occasionally kept over their second year by means of cuttings, yet they seldom prove handsome or healthy. Double-flowered varieties are propagated by cuttings planted in April or May.

SWEET-WILLIAM.

Though not strictly a biennial (for the plants will live many years), I give you this among the biennials, because the plants never bloom so finely as in their second year. The flowers vary greatly in colour; some are rich crimson, others rose, some white with a rose-coloured ring round the centre; but they are all handsome. The seeds should be sown in July, and the seedlings planted



out singly, or the beauty of individual plants and varieties will not be seen. When they are in flower, you can mark those you think the most handsome, and save seeds from them only. You may tell whether your seedling plants will bear light or dark-coloured flowers by their pale or brownish-green leaves, the former producing light-coloured flowers, the latter dark.

INDIAN PINK.

The varieties of this plant are exceedingly beautiful: they vary greatly in the tints and variegations of their colouring, and some are double and others single. The prevailing colour is red, usually variegated with darker markings. Sow the seeds in March in a pot, and set them in a window; or sow in August in the open ground, if you can

shelter the plants a little in winter by any slight covering: in the former case, plant them out in May, in a sunny situation, and in tolerably large groups.

CANTERBURY BELL.

This is a showy erect plant, bearing a number of very large bell-shaped flowers, which are of different shades of blue or purple, and sometimes white. Some varieties bear double flowers, but they are not so handsome as the single. The seeds may be sown in July, and the plants should be put out singly for blooming.

BROMPTON STOCK.

This requires the same treatment as the wallflower. It is, however, scarcely so



CANTERBURY BELL.

hardy. It should therefore be planted where it is to flower early in autumn, in order that it may be thoroughly established before the frost. In exposed situations, it is advisable to shelter the plants during frost, or the young plants may be potted and stored away in an outhouse, where they should be supplied with just enough water to keep them alive. On return of mild weather they should be planted out.

ANNUALS.

MIGNONETTE.

THIS little plant is a native of Egypt, but its name is French, and means "little darling," a title which it well merits. To this Cowper alludes when he calls it the "Frenchman's darling." Where it has plenty of light and air, it grows about four inches high before it blooms; but it continues to grow in a straggling manner after flowering, and until the side-shoots become as long as the main branch: the plant then wants neatness of form, and runs to seed. Now, this will well bear to be planted out, so that if a small patch of a dozen seeds is sown in any corner, the seedlings can be removed safely as soon as they bear four strong leaves; and the check rather improves than

injures them, for it has the effect of producing a more stunted growth, and throwing them into flower sooner than if they were suffered to flower without being transplanted. If you sow small patches half-a-dozen inches round, once every six weeks throughout the summer, the crops will succeed each other well, and you will be enabled to keep up a supply of dwarf, young, healthy, and handsome plants. When they are large enough to be removed, plant them three in a group, in three or four different places in your plot of ground, and as other sowings come forward do the same.

TREE-MIGNONETTE.

Mr. Miller had in his conservatory, and in the sunny windows of his house, every spring plants of Mignonette trained in the

form of a tree, which not only produced abundance of flowers at an unusual season, from February namely to May, but presented a less straggling form than when treated in the ordinary way. The children being very anxious to possess similar trees of their own growing, he wrote out for them the following instructions:—

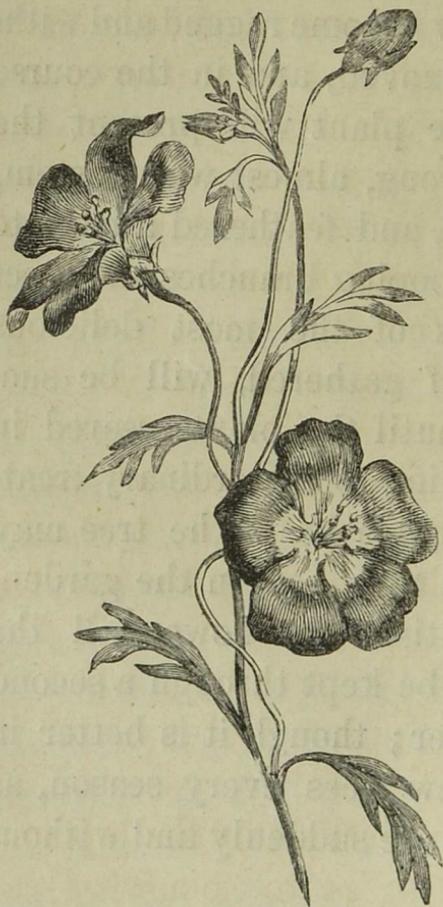
“In a four-inch garden-pot place a handful of tiles, broken small; shake them together and place on them a tuft of moss, to prevent the earth from being washed through. Half fill the pot with knobs of loam mixed with rich manure, and fill up with finely-sifted soil. In the centre of the pot sow, about May or June, two or three Mignonette seeds, selecting the largest and darkest coloured. Water them moderately from time to time, and when they come up destroy all but the finest. This will grow

rapidly, and will form one central stem, and probably several side shoots. Pinch off the last as they appear. This will make the central shoot grow yet more rapidly, and it will soon show flower-buds. Before these begin to expand, nip them off, and with a sharp penknife remove all the buds which attempt to push from the base of the leaves, except the one in the bosom of the highest leaf; but avoid, as much as possible, injuring any of the principal leaves. All the nourishment being thus diverted from the flowers and lateral shoots, will set towards the bud which has been permitted to remain, and which will now grow so rapidly that it will require the support of a stick, and will itself soon show flower-buds. These must now in their turn be nipped off, and another bud must be selected for a leader. From time to time the whole plant should be

carefully looked over, and all buds be removed except the single terminal one. When the plant has attained the height of about twelve or eighteen inches, it should be supplied with a stout stick of the same height, and be shifted into a larger pot, drained as before. The buds which proceed from the bases of the few upper leaves of the plant must now be allowed to attain the length of two or three inches; but all attempts to produce flowers must be ruthlessly stopped until October or November. If the winter be a mild one, and the plant favourably situated, a few flowers will perhaps appear even now, and these may be allowed to remain; though the future well-being of the plant will be promoted by its remaining perfectly at rest, producing neither leaves nor flowers. In February or March, according to the quantity of light and heat to

which it is subjected, buds will be developed from its upper portion ; when (but not before) the stem-leaves, now become ragged and withered, should be removed, and in the course of a few weeks the plant will present the appearance of a strong, almost woody stem, with a bushy head, and feathered almost to the ground with drooping branches and erect clusters of flowers of the most delicious fragrance, which, if gathered, will be succeeded by others, until the plants reared in the open air according to the ordinary treatment are ready to come in. The tree may then be transferred to a bed in the garden, where it will continue to flower all the summer, or it may be kept through a second or even third winter ; though it is better in practice to rear new trees every season, as old ones sometimes die suddenly and without apparent cause."

SHOWY NEMOPHILA.



This brilliant little plant grows about six inches high, and has deeply-cut leaves, and abundance of blue flowers with a pure white centre. Its seeds may be sown at different seasons, a few in April, and a few at the end of September; for if the winter be not very sharp, those sown in September will

bloom very early in spring, and those sown in spring will come into flower by the time the autumn-sown ones decline. They thrive best if sown where they are to bloom : there is, however, no harm in planting out the few that you take up from a patch when they have been sown too thickly ; some gardeners, indeed, make them regularly potted plants, and therefore sow all in one place, and pot off or plant out at pleasure. They are very beautiful till they begin to straggle along the ground, when, although they still keep flowering a little, I should advise you to pull them up to make room for something better.

DWARF LUPINE.

This is one of the prettiest of the lupines, bearing leaves cut so as to somewhat re-



DWARF LUPINE.

semble one's expanded fingers, and spikes of what are called butterfly-shaped flowers. This kind is about a foot in height, and bears long spikes of blue flowers. Sow them where the plants are to remain.

TEN-WEEKS STOCK.

This is an upright plant, with longish hoary leaves, and bunches of either single or double flowers. It grows a foot high, or more. Even when the scarlet, white, and purple varieties only were known, they were general favourites, both on account of their colours and exquisite fragrance: the Germans now profess to have twenty or thirty different colours. I have limited my selection to the very distinct shades, but, as I shall give you but one sort each, you must all sow them very carefully, and exchange plants with one another as soon as they are

ready to plant out, so that each of you may possess all the colours. Three plants in a group are sufficient. It is customary to sow stocks in hot-beds; thus to obtain an early bloom, which is often so forward as to be almost gone before the crop sown in the open air comes on; but we must be content with the ordinary season of flowering. The original of this plant grows wild on the sandy sea-coast of Britain, but in this state has little to recommend it.

CHINA ASTER.

These are gay star-like flowers, growing a foot or fifteen inches high, upright, but spreading when they once begin to branch. The original has a single flower, in shape like a daisy; but there is a great variety in gardens, and the double and full-quilled sorts only are prized.

The colours are various; not only are there all shades of red and blue, both of which appear mixed with white, but the white is mixed singly with all the shades, so that the autumn garden is indebted to this flower for a good deal of its gaiety and brilliant effect. The Germans have raised many varieties, which are sold under the name of German



Asters; and the imported seeds generally produce very fine varieties. I have selected for you some of the most distinct colours. You had better sow the seeds of each sort

together in one place, and afterwards plant out the seedlings into the borders, in groups of about three. They want little attention, provided they are kept clear of weeds, and are planted in a moderately good soil.

CONVOLVULUS MINOR.

This pretty plant derives its name *minor* from its dwarfish mode of growth and the comparative smallness of its flowers. It grows about a foot high ; it is rather spreading, and has funnel-shaped flowers of a dark blue, with a white centre and yellow throat : these are very showy in bright weather, but close on the approach of rain or darkness. Three or four seeds should be sown in a group, and the plants allowed to remain without removal, as they suffer considerably from being transplanted.



CONVOLVULUS MINOR.

You have now a set of dwarf annuals ; I shall give you also a few taller kinds, to be planted further from the edges of your beds.

CONVOLVULUS MAJOR.

I am sure you will like to have some of this gay climbing plant, with heart-shaped leaves and trumpet flowers, though the latter last but part of one day. So many, however, are produced, that in the early part of the day the plants are always beautiful. The seeds in this packet are mixed, and if you allow six or eight plants to grow in a group, you will probably have flowers of all the different colours, dark-purple, blue, rose, and white, with blue and white stripes. Let them stand in the central part of the bed, and as soon as the plants begin to grow, stick in a strong stake four feet high, round which they may twine.

SWEET-PEA.

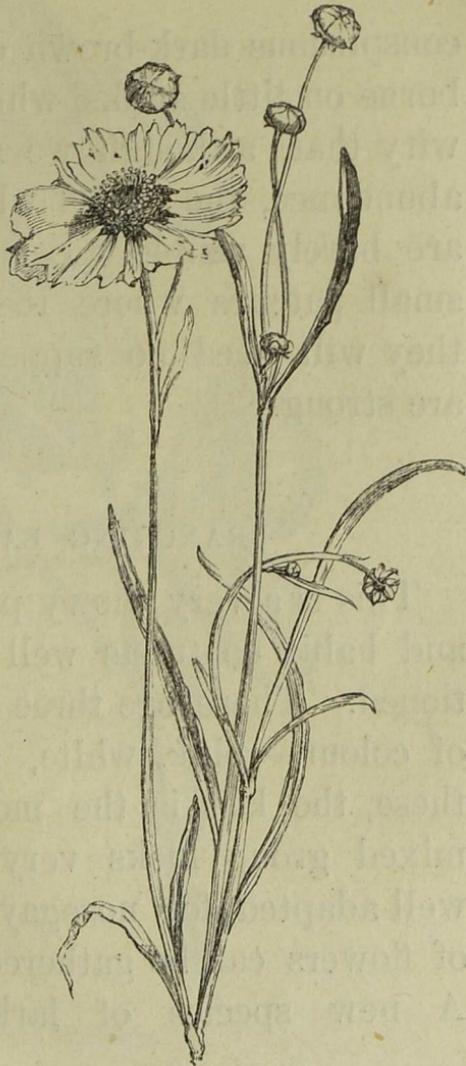
These climbing plants must also come in the central part of the bed. They are grown for their agreeable scent, and for the abundance of variegated flowers which they produce. There are several varieties as to colour, and each variety has two or three colours in itself, for instance, rose and white, purple



and maroon, rose and scarlet, &c. They require to be trained to sticks or something of the kind. Leafless branches of trees are the best supports; for the peas will grow over them, and quite hide any unsightly appearance with their mass of flowers. They may be sown ten or twelve in a group, and will grow three feet high, so that neat branches of the same height should be placed for them to climb over. Some gardeners, however, use only a single stake, and tie up the peas as they grow till they are two feet six inches high, when they allow them to fall over and form a head of bloom; but branched sticks support the peas well, and give much less trouble than single stakes.

TWO-COLOURED
COREOPSIS.

This very showy plant grows about two feet high, and forms a large densely-branched head, covered with numerous flowers, and continuing in beauty for a considerable period. The leaves are cut into a great many very fine divisions. The flowers are flat, larger than a shilling, rich yellow, with a



conspicuous dark-brown eye, or centre, and borne on little stalks, which are so fine and wiry that, although we see the flowers in abundance, the stems which support them are barely visible. Let them be sown in small patches where they are to remain; they will need no support, for their stems are strong.

BRANCHING LARKSPUR.

This is a very showy plant, which in size and habit contrasts well with the last mentioned. There are three principal varieties of colour,—pink, white, and rich blue; of these, the last is the most showy; but a mixed group looks very well. They are well adapted for nosegays, as the branches of flowers can be gathered with long stalks. A new species of larkspur, *Delphinium*



DELPHINIUM FORMOSUM.

formosum, should find a place in every garden. It should be sown either very early in spring under a frame and planted out in May, or it may be sown later in the open air. The former will blow the same year, the latter not till the following summer. It is a perennial, having large blue flowers with a white centre.

ESCHSCHOLTZIA.

This is a valuable flower for nosegays, as it blooms freely, and its flowers are of a good clear orange-yellow, which contrasts well with the blues and reds that predominate in autumn.

NASTURTIUM, OR TROPÆOLUM.

Of this there are many varieties, light yellow, orange, and blood-red. That called

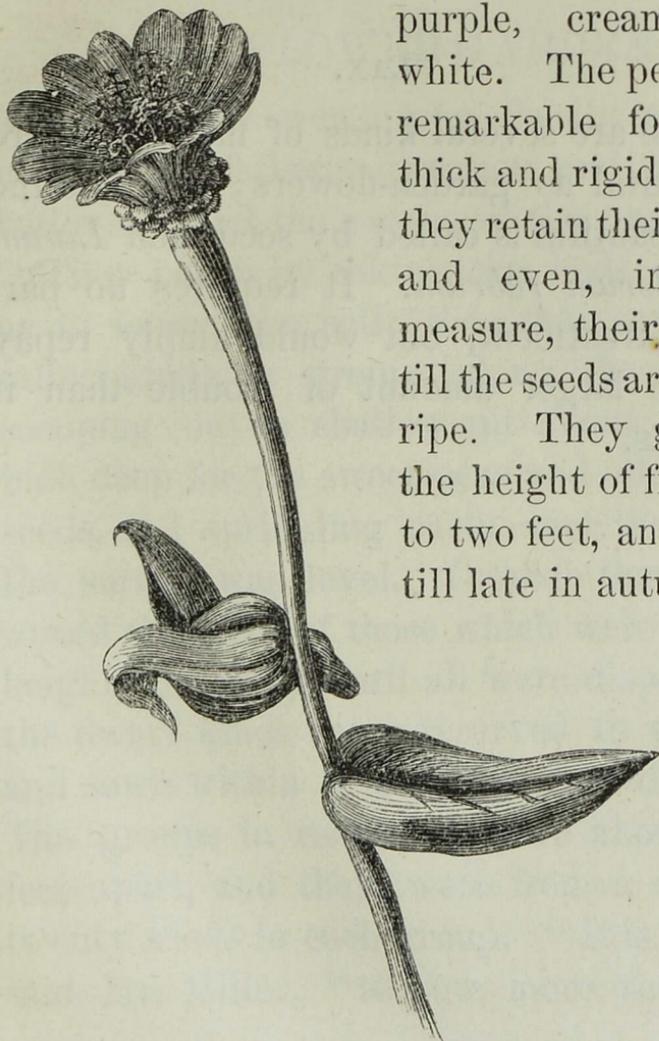


the “dwarf new crimson” is among the most beautiful, and may sometimes be

grown with advantage when the others would be objectionable from their straggling habit. That called canary-flower, from its fancied resemblance to the bird whose name it bears, is a graceful climber. It is of a distinct species from the others, and is called by botanists *Tropæolum Canariense*.

ZINNIA.

This exceedingly-beautiful flower is rather delicate, and requires some care in rearing. It should be sown in a hot-bed, and the young plants should be pricked out when four or five inches high. When young, it is considered dainty food by slugs, and therefore requires watching ; but when once fairly established, its rough stems and leaves are able to take care of themselves. A small packet of seeds will probably include all the best colours, which are crimson, bright orange,



purple, cream, and white. The petals are remarkable for being thick and rigid, so that they retain their shape, and even, in some measure, their colour, till the seeds are nearly ripe. They grow to the height of from one to two feet, and flower till late in autumn.

FLAX.

There are several kinds of flax which are ornamental as garden-flowers; of these the most beautiful is called by seedsmen *Linum grandiflorum rubrum*. It requires no particular treatment, but would amply repay a much larger amount of trouble than it demands.

THE FLOWER-GARDEN.

THE children were soon busily at work under their father's direction, and ere long had completed the sowing of their annuals.

They began by raking the beds over so as to loosen the soil: then they sowed the taller kinds in groups along the middle, scooping out a shallow pit about half an inch deep for the sweet-peas and other large seeds, and sprinkling earth over them until the surface was level. Outside these, they sowed the seeds of those which were next in height, and so on until all were disposed of, the dwarf kinds being reserved to the last, and sown within a few inches of the edge. The groups in each row were about three feet apart, and there were from a dozen to twenty seeds in each group. "It is better," said Mr. Miller, "to sow more seeds in a

group than will occupy the ground when grown up; for, most frequently, in every parcel of seeds there are some which do not vegetate, or which produce weak plants; and very often some which have grown are destroyed by slugs. If, however, they all come up, and you find them to be too thick, you can pick out the weaker plants, remembering, as far as possible, to let those stand which are nearest to the edge, where they will have free access to air and light." The children were told that it was not necessary to scoop out the earth for the smaller seeds: these, therefore, they simply sprinkled on the ground, within a ring formed by pressing down an inverted flower-pot, and then lightly passed a rake to and fro over the spot. Those which were to be transplanted, they sowed in drills here and there, wherever there was a convenient spot; their father recommend-

ing them to plant these in groups of six or eight in the interstices between those which were intended to flower where they were sown.

“ We have now done enough for to-day,” he said. “ I will furnish you to-morrow with a few other seeds, and some rooted plants, which will give to your gardens a variety not to be attained by annuals alone.

“ The ground is now in such an excellent state for sowing garden-seeds, owing to the recent rains, and there is so good a prospect of fine warm weather that, in the course of ten days, you may expect to see some of your young plants appearing. You will, perhaps, have occasion to water them now and then if the ground should become very dry : this I should recommend you to do in the evening, using a watering-pot with a rose, and taking care not to confine your watering to

the exact spot where the young plants are growing; and this for a reason which I will explain to you by-and-by. As the young plants appear, you will feel too anxious about their welfare to need being told to watch them: your great care will be to find out what you can do to serve them. You will look upon them as more really your own than anything that you have ever possessed, because they never belonged to any other person. Nor will there be any selfishness in this feeling; for the gratification which we feel in contemplating plants of our own rearing is an instinct implanted by Him Who ordained that man should eat bread in the sweat of his face, and Who, to cheer him in the midst of his toil, decreed also that he should reap in joy. You already, I doubt not, anticipate great pleasure in gathering nosegays from plants raised from seeds sown

by yourselves in your own gardens; so I need only assure you that the feeling will grow stronger as you grow older. From having watched them come into leaf, and bud, and flower, and from having seen how entirely dependent they are on the dew of God's Providence, you will value them as gifts from Himself, bestowed in fulfilment of His promise, to reward your industry and patience."

THE ROSE.

THE rose is so important a flower in every garden that it deserves a short chapter to itself. With Mr. Miller it was so special a favourite that he had not only roses clustering over his walls, roses trained so as to form arches, dwarf roses in beds, and standard roses on the lawn, but he also devoted a large portion of his greenhouse to their culture. These last began to flower in April and May, and as the out-of-doors ones lasted till November, he was well supplied during two-thirds of the year. Should any of my young readers feel inclined to bestow equal attention on this charming flower, they will find the following simple directions practical and easy.

In winter, beg some woodman residing in your neighbourhood to collect for you in the

woods a number of wild-rose stocks. They should be about half an inch in diameter and from one to four feet high. If the roots are very large, shorten them by the help of a strong knife or saw. Long roots are not only inconvenient to handle, but are objectionable besides, as having a tendency to throw up wild suckers. Plant them in a row, about two feet apart, and press the earth tightly about the roots. In spring, when they begin to shoot, shorten them to the desired height, and rub off all the buds as they appear, except two or three of the strongest, which by July will have pushed out into strong shoots. Whenever, during this month and the following, a rose happens to come into your possession of which you would like to have a plant, examine the stalk, and select for the operation of *budding* any leaf (probably the third or fourth from

the flower) which has at its base a bud which has not yet begun to swell. A bud there is at the base of every leaf, though you may be unable to see it, and it is possible that any one of them may succeed. If, therefore, the rose is a very good one, and you have plenty of stocks, try them all. To perform the operation, first press the point of your budding-knife through the bark of one of the strongest shoots of a wild rose, beginning as close as possible to the stock, and drawing it along for about an inch and a half, taking care to cut down to the wood. Whether the cut is above, below, or on one side is of no consequence, but it is desirable that it should be in a line with the lowest leaf. Now, with the thin handle of the knife, raise the bark a little on each side of the cut. This done, prepare your bud as follows:—take the rose in your left hand,

with the stem downwards, insert the knife about half an inch above the bud, and scoop out the leaf with a small portion of bark and wood attached to it, bringing the knife out half an inch below the leaf. You have now a little shield, as it were, of bark and wood, with a leaf in its centre. Pinch both ends of this between your finger and thumb, so as to cause a slight separation of bark and wood, and to afford admission for the handle of your knife, which you must pass all round between the bark and the wood. When the separation is nearly completed, by the application of the thumb-nail you will be able probably to remove the shield of wood, leaving only the bark with its leaf and bud. If a small portion of the wood should remain after all, do not waste time or risk mutilating the bud by using any further effort to remove it, but let it stay ; it will do no harm.

The most delicate part of the operation remains to be done; and that is, to open the slit previously made, so as to introduce the bud. To do this, you may find it necessary to cut off the greater portion of the leaf; take care, however, to leave enough to serve as a handle. When it is once inserted, slip it downwards until it will go no further. Then wind a bit of worsted a few times round the stem, above and below the bud, to keep all secure. One or two buds more (of the same kind of rose) may be inserted on a stock, but each must be on a separate branch, and after the operation is completed the branch should be deprived of its extremity. Forward buds, inserted early in the season, will push, and sometimes even flower the same year. The string should then be *loosened*, not removed, and the stock cut back close to the bud, *but not before*. Many

buds will remain dormant until the following spring ; but whenever they push it is necessary that they should be tied fast either to the stock or to a stake, or the first high wind will blow them out of their new home.

All prickles are to be previously removed, both from the bud and the stock, that are likely to interfere with your manipulation, as well as any small leaves which are found inconvenient at the base of the branch destined to receive the bud. Some people make the incision in the shape of T, others J, but the cross cut is unnecessary, and frequently causes the failure of the operation, by weakening the branch, and making it liable to break either at the top of T or the bottom of J.

Budding should be performed either in the evening or on a cloudy day, but not in wet weather, or when rain is impending ; for

if water finds its way into the incision before the bark and wood have grown together again, the bud will most likely perish. The operation is a tedious one to understand from description, but simple and elegant in practice, and requiring far less time to perform than to describe.

Another method of propagating roses is by layering. For this purpose, dwarf roses growing in the open air may be employed, or standard roses in pots. In the latter case, dig a hole in the ground, and in it lay the pot, on its side, so that the branches may be along the ground. Bend down a branch, and at any point where it touches the soil cut it half way through, and peg it down into a furrow two or three inches deep; fill up the trench with earth, and the operation is completed. It may be performed at any time during summer. In winter, or early

spring, separate the layers from the parent plant with a sharp knife and either plant them in pots for forcing—and for this they are admirably suited—or plant them in the open air. They will flower in the following summer.

A yet simpler method, though not so certain, is, to plant cuttings in a damp, shady situation. They may be inserted very close together, as but a small proportion of them are likely to grow. August is the best month for this operation, and those which have taken root may be removed to their destination in the succeeding spring, though they will make stronger plants if left for another year. Many kinds of rose are shy of taking root from cuttings; either of the other methods is, therefore, to be preferred if feasible; but the China, Tea-scented, and Bourbon roses may be raised in this way with tolerable certainty.

With respect to the pruning of roses, it is difficult to give full directions in a limited space. Generally speaking, the China and Bourbon roses should be thinned, and the flowering shoots but slightly shortened; the Provence and Moss roses should have at least two-thirds of the new wood cut back every spring; the Hybrid Perpetuals should be pruned yet more closely to the stalk; while Banksian roses and Austrian briars should be thinned only, and that sparingly. To raise a succession of flowers, the operation of pruning should be performed at various seasons, or, rather, at various periods of spring, some plants very early, others later. Those first pruned will throw out flower-bearing buds as soon as mild weather sets in, and these will be the first to come into bloom. Those pruned later in the season will be deprived of the buds which

have already begun to start, to supply the place of which the lower buds will begin to push, and will be proportionally later in coming to perfection. Gross shoots, having a tendency to run to leaf, should be removed whenever they appear.

As to soil, the simplest direction is:—let it be as rich as possible. Farm-yard manure, wood-ashes, soot, and guano are all good, and should be administered in, if possible, a liquid form. Charred turf, too, is excellent.

Constant care is requisite in spring and early summer to keep the shoots clear of caterpillars and grubs. These should be closely searched for while they are yet minute. They may be found sometimes eating into the bud before it has begun to expand; sometimes they attack the tender leaves, in which they provide themselves with dwellings by fastening the leaflets together, feed

ing all the time of their residence on the walls. When these are consumed, or are grown too coarse to supply them with food sufficiently delicate for their fastidious palates, they make their way to the young flower-buds, which they rapidly destroy. One species of grub nothing will satisfy but the tender pith of the youngest shoot. Into this it eats its way, and, without touching any vital part, excavates for itself a tubular dwelling-place, and is only detected when the mischief is done by the sudden withering of the shoot. These mischievous little creatures proceed from the eggs of certain small moths and saw-flies, some of which are deposited on the old wood during the previous year, and others from time to time after the buds have begun to swell. To prevent them from doing much harm, they should be caught and killed when they are not more

than the eighth of an inch in length, and no thicker than a hair. They are in colour green or brown.

The little green flies (*aphides*) which infest the young shoots of roses may be destroyed by dipping the twigs into a basin of tobacco-water.

Among the many hundreds of roses commonly grown, it is no easy matter to select the best, and it is scarcely probable that any two persons would choose the same. The following, however, though perhaps not all the best, are recommended as worthy of cultivation:—

Common Moss; White Provence; Lanii, *blush moss*; Crimson Moss; Crested Moss.

BOURBONS.

Souvenir de Malmaison, *pale flesh colour*; Dupetit Thouars, *carmine*; Queen, *delicate fawn colour*; Sir Joseph Paxton, *crimson*.

HYBRID PERPETUAL.

Baronne Prévost, *rose*; Baronne Hallez, *light crimson*; Blanche de Bernède, *white*; Géant de Batailles, *crimson*; Lord Raglan, *crimson scarlet*; Prince Leon, *cherry*; Caroline de Sansal, *pale flesh*; Jules Margottin, *carmine*; La Reine, *rose*; Madame Vidot, *delicate pink*; Gen. Jacqueminot, *scarlet*; Triomphe de Paris, *purple crimson*; William Jesse, *rose*; William Griffiths, *rose*; Madame Rivers, *blush*.

CHINA.

Yellow; Mrs. Bosanquet, *pale flesh*; Clara Sylvain, *white*; Cramoisie supérieure, *crimson*; Prince Charles, *scarlet*.

TEA-SCENTED.

Devoniensis, *creamy white*; Gloire de Dijon, *salmon*; Souvenir d'un ami, *rose*;

Viscomtesse de Cazes, *bright yellow* ; Niphetos, *white* ; Moiré, *flesh and fawn* ; Goubalt, *rose*, very fragrant.

NOISETTES.

Solfaterre, *bright sulphur* ; Cloth of Gold, *pure yellow* (against a wall) ; Fellenberg, *crimson* ; Joan of Arc, *white*.

AUSTRIAN BRIARS.

Double yellow ; Single copper.

Most of the above would probably be included in any tolerably complete list of good roses, though many others are of necessity omitted. Among the whole, the Hybrid Perpetuals are the most valuable, from their flowering late in autumn, as well as in summer ; the Tea-scented are the most delicate,

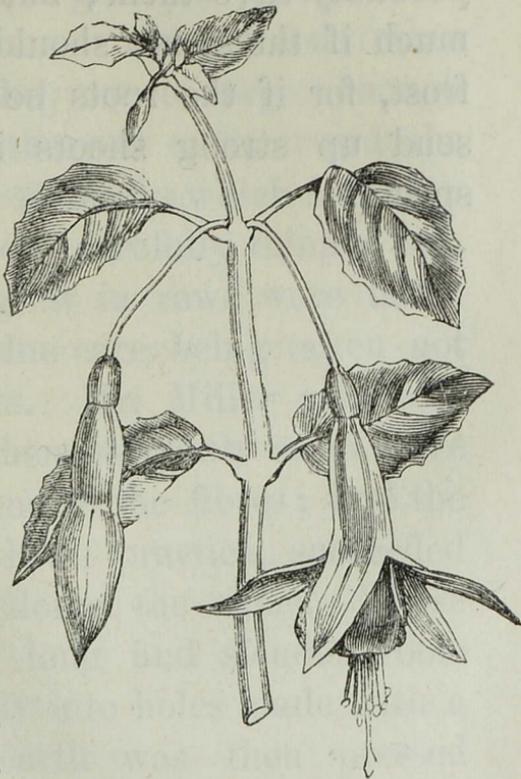


AUSTRIAN BRIAR.

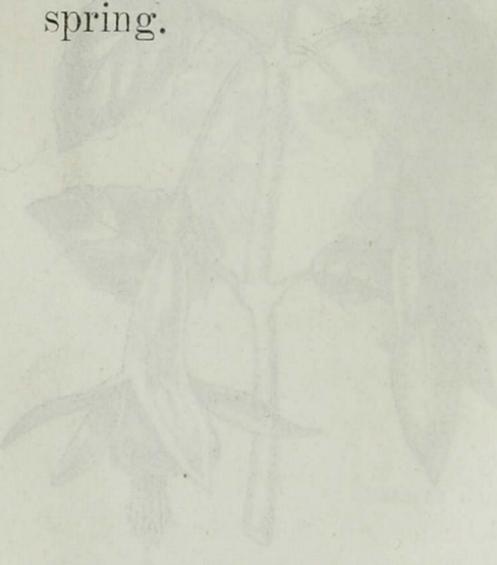
with the exception of Gloire de Dijon, which is tolerably hardy; and the Austrian briars will flower only in the purest air.

THE FUCHSIA.

The varieties of Fuchsia now cultivated are literally unnumbered. I have selected one for you which is hardy, and rarely grows more than a foot and a half high, and is therefore well adapted for your gardens. You may almost insure the pro-



tection of fuchsias from frost by twisting a hay-band just above the roots, and working upwards, and then by laying a heap of sawdust at the crown of the root. This will probably save them; but it will not matter much if the stems should be killed by the frost, for if the roots be unhurt, they will send up strong shoots in the succeeding spring.



TRANSPLANTING ANNUALS, &c.

IN the course of a few weeks, the little gardens began to lose their bare appearance. The seedlings which grew in groups were then carefully thinned out; weeds were removed before they were large enough either to exhaust the soil or to crowd the young plants; the seedlings which had been sown in groups were carefully thinned out, and those which grew in rows were taken up with a trowel, due care being taken not to injure the roots. Mr. Miller generally managed to raise them so gently as to leave a little earth hanging to the fibres; and the children, after a little practice, succeeded tolerably well in doing the same. Those plants which had long and slender roots were dropped singly into holes made with a dibble, and the earth was then pressed

round them; but some which had tufted roots were treated differently. For each of these a hole was dug with a trowel, and the seedling was held in the centre with the left hand, while the right was employed in pressing the earth gently round the stem. This operation was a much longer one than that of sowing, and was performed from time to time as the weather was favourable; the children being told that although by careful watering and shading, plants recently removed might be saved in the sunniest weather, yet if watered by showers, and shaded by clouds, they would be much more likely to thrive.

Many questions were asked by the children as to what plans they should pursue in order to keep their garden stocked for another year; in answer to which, their father gave them the following directions:—

When the flowering season of your annuals and biennials is drawing towards a close, keep a close watch on the seed-vessels of the various kinds, and gather them before they open and shed their contents. Lay them in the sun to dry thoroughly, and then pack them away in paper, marking each kind with its proper name, and keep them in a dry place until they are wanted.

CUTTINGS.

THE character of perennials is, that they either increase by their roots, or give us the opportunity of propagating them by other simple means. The former—those, namely, which spread at the roots—may be taken up and parted into as many pieces as can be pulled or cut off, with some little root remaining attached to the plant. All these pieces turn out precisely like the parent; but when we sow the *seed* from a cultivated perennial, we cannot positively foretell this result.

Another method is by cuttings. In every good nosegay you will be sure to find some sprigs capable of striking roots and becoming complete plants. Some of these form roots readily, only requiring to be planted in an open border; others will require great

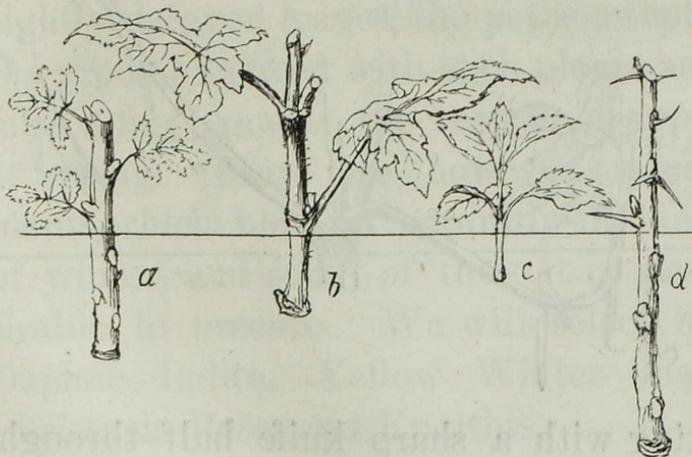
exactness in their preparation, and constant care until they are well rooted. Pansies, wallflowers, fuchsias, roses, and such flowers as are always cut with some of their leaves on, afford the opportunity of striking young plants. Others, which are cut with the flower-stalks only, will not. The tulip, ranunculus, and anemone are of this kind. Generally, we may assume that wherever there are leaves, there are also buds. A slip or shoot of any plant must be prepared for striking, by cutting the lower part neat and straight across the stem, close to the bottom of a leaf, and taking off the top; and, according as the leaves are near together or far apart, you must cut off one, two, or more, so that an inch of the stem may be put into the soil, with an inch or an inch and a half above it, not bare of leaves. But in taking off the leaves, you must not

cut them quite close to the stem, or the bud at the base of the leaf may be injured. In the case of a sprig of a Rose, one leaf is generally enough to remove; but in southernwood, you must strip off a good many. The objection to the leaves being left on is simply, that you cannot then place the cuttings so well in the soil. If you are striking only two, three, or even half a dozen, you may fill one-third of a flower-pot with broken potsherds, to give the water an opportunity of running away freely; the other two-thirds may then be filled with a compost of loam and sand, in equal proportions. After this, knock the pot on the bench or table, to shake down and settle the earth, and then level the surface. Press the edge of a tumbler or bell-glass on the soil, to make a ring; then, with a small piece of stick, or your pencil, make holes an inch

deep within the mark, and insert your cuttings; water them very gently, so that the soil may be closed about them, and cover them with your glass. Some plants will strike in a few days; but they ought not to be removed until they have begun to grow well. The pot may be placed almost anywhere; but when the sun shines brightly, fasten a piece of paper on the sunny side of the glass, to form a shade. Let the glass be taken off every morning, and the inside wiped quite dry, and let the earth in the pot be watered sufficiently to keep it moist. As soon as the cuttings have begun to grow well, you may conclude that they are well rooted. Turn out the ball of earth, and divide it, taking care not to injure the growing plants. Let each of these be then planted separately in a pot or in the ground, and watered daily; they must, however, be shaded.

Most of these cuttings would strike if planted in the open ground, under a hand-glass, and shaded. In the months of June and July, all sorts of greenhouse-plants will strike, and require little attention besides occasional watering and shading. When they are growing well, they must either be potted, or planted in the garden ; and when you transplant them, take care to raise them with a trowel in such a way that each plant may have a mass of earth hanging to its roots. I recommend you to try this method of rearing myrtles, geraniums, China roses, heliotropes, pinks, pansies, mesembryanthemums, hydrangeas, verbenas, petunias, phloxes, choice sweet-williams, wall-flowers, and almost all shrubby perennials. Many of them will be found in good nose-gays ; and it will be a pleasing amusement to pick out the leafy stems, which, when

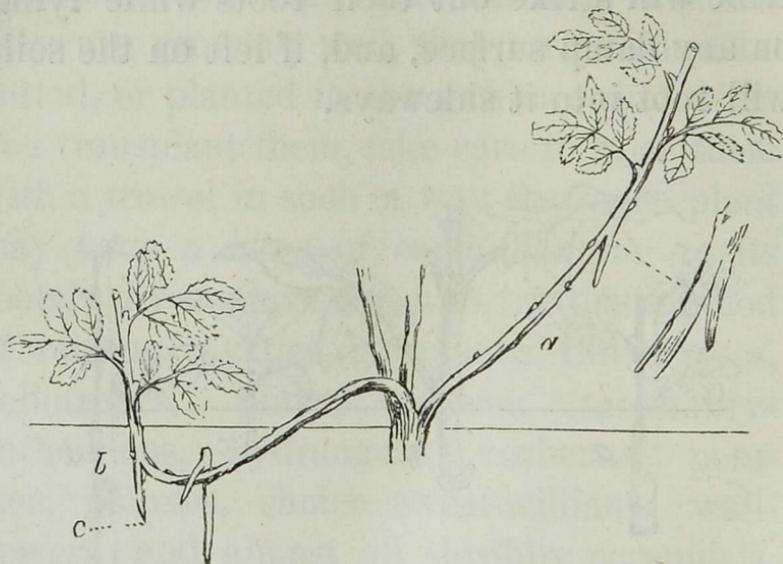
they have become plants, will be a source of much gratification. Some plants strike with wonderful facility. The southernwood will strike in a bottle of water; so also will mint, and some others. Most of the cactus tribe will strike out their roots while lying on any damp surface, and, if left on the soil, will root into it sideways.



I will give you sketches of cuttings pre-

pared and planted, which will explain the process better than I can do by mere description.

Most shrubs and shrubby plants may be reproduced by layers. A layer is made by



cutting with a sharp knife half through a branch at a point near the origin of a leaf, and bending it down till the wounded part

is covered with soil. It is then secured by a peg, and kept constantly moist. Shrubby-plants, so treated, generally root in two months. Shrubs, on the average, take twelve months to become sufficiently rooted to bear removal.

One ought, perhaps, to be content if the garden during the depth of winter presents a neat appearance, the beds free from unsightly decayed leaves, the paths swept, and the ground stocked with such plants as promise a fair show at the very first approach of spring. There are, however, some few plants which blossom naturally in the dead of winter, and some of these it is most desirable to procure. We will select four—*Daphne Indica*, *Yellow Winter Jasmine*, *Christmas Rose*, and *Eranthis*.

DAPHNE INDICA.

An evergreen shrub, the branches of which severally resemble in form the trunk of a palm. The flowers, which are pure



white, tinged externally with rose-colour, grow in tufts in the bosoms of the leaves, and are deliciously fragrant. It is propa-

gated by grafting a young leafy shoot on a stem of spurge-laurel, which should be transplanted from the woods on purpose. It is usually treated as a greenhouse-plant, but in the south of England grows perfectly well out of doors without any protection, and even in our coldest counties requires but little protection, which may be afforded by driving a thick stake into the ground close to it, over which should be thrown a bass mat, or piece of canvas during very severe frosts. It begins to open its flowers in November, and blows all through the winter.

YELLOW WINTER JASMINE.

Yet hardier than the last, as it needs no protection. It may be reared from cuttings, and should be trained against a wall. It produces its leaves in summer, and when they have fallen off it bears a profusion of

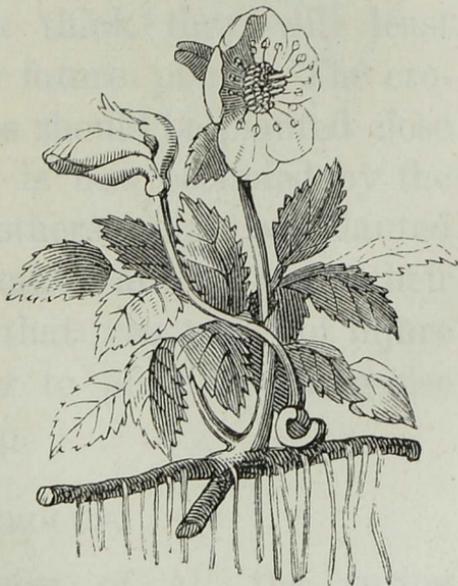


YELLOW WINTER JASMINE.

bright yellow flowers, unaccompanied by foliage; hence its name *Jasminum nudiflorum*.

CHRISTMAS ROSE.

A species of hellebore, and therefore having no right to the queenly title of "rose." It is a herbaceous perennial, producing large deeply divided leaves, which are not destroyed by frost, and in December are accompanied by stalked tufts of large white flowers, not fragrant but handsome. This may be increased by



division of the roots. The winter Aconite (*Eranthis hyemalis*) is a very pretty winter and spring flower, with bright-green leaves and cheerful yellow petals, well worthy of cultivation. It requires the same treatment as the winter rose.



HARDY BULBS.

IN October, when you have cleared away most of your annuals, you will have vacancies for a few bulbs, such as snowdrops, hyacinths, crocuses, jonquils, and lilies. Let these be planted in small groups where you think they will least interfere with your future plans. The crocuses and snowdrops should be planted close to the edge, which is now occupied by the polyanthus. The others must be planted further back, and take care to mark their places with labels, that you may not injure them by attempting to plant anything else before they come up.

CROCUS.

This is the gayest of all the spring flowers, affording a great variety of brilliant

colours,—such as pale gold, deep orange,



dark and light purple, pure white, and many that are curiously striped. They are annually imported in large numbers from Holland. They are usually planted three inches deep in the ground, and come up very early in the spring. Each bulb throws up several flowers, shaped somewhat like a tulip, but smaller, and destitute of a stem: that which appears to be a stem is the tube of a very

long corolla. Every root produces two or three new ones in a season, and therefore you soon get a good stock. After the flowering is over, the foliage grows long and grassy, and we may say untidy; hence many persons cut it off close when it has grown the full length, but this weakens the root. The plants may be left in the ground undisturbed for three years.

SNOWDROP.

This is a favourite flower in every garden, appearing at a season when it is hard to say whether it belongs to the past or the coming year, and suggesting, with its pure white, drooping flowers, which brave the most intense frost, the notion of the humble but fearless confidence of innocency. The Snowdrop is to be found apparently wild in many parts of England: a double variety is



SNOWDROP.

often cultivated in gardens, but it is inferior to the single one. It requires the same treatment as the other bulbs.

HYACINTH.

This is one of the most beautiful of the bulbous plants. It bears highly-fragrant flowers on a spike, as botanists call it, forming a pyramid or column of bloom, which is composed of as many as twenty or thirty, or more individual flowers, each on a separate footstalk. The best sorts have so many flowers that they touch each other all the way up, and the column of bloom grows smaller and smaller, until at top there is only a single flower, though at the bottom there may be six or eight round the stem. The colours are all the shades of red, blue, buff, yellow, and pure white; and many kinds



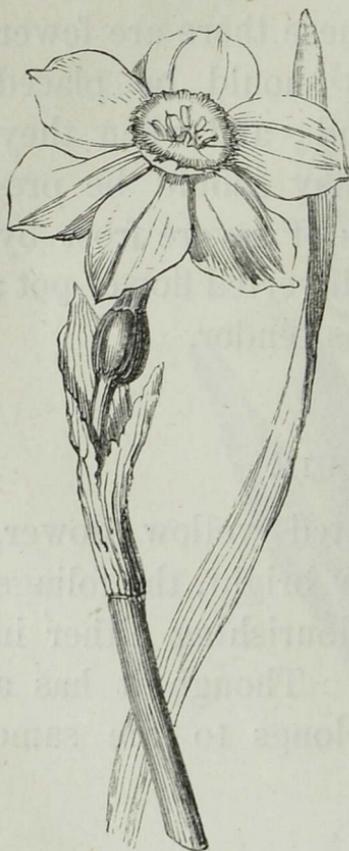
HYACINTH.

are variously marked with pink or blue eyes on a white ground ; some flowers are double, and very large, and of these there are fewer on a stem. The bulbs should be placed three inches under ground ; and when they appear above ground, they should be preserved against the effects of severe frost by a covering of litter or an inverted flower-pot ; but they are by no means tender.

THE JONQUIL.

This is a sweet-scented yellow flower, growing a foot high, very bright, the foliage light and elegant, and flourishing either in the ground or in a pot. Though it has a name of its own, it belongs to the same family as

THE NARCISSUS.



Of this pretty spring flower there are many varieties ; those which bear a number of flowers on a single stem are known by the general name of Polyanthus Narcissus, and are best suited to your gardens, being fragrant and showy. One of those which I have given you has bright-yellow flowers, the other white with yellow cups. They are large bulbs, and require to be planted so that

the top may be three inches under ground.

WHITE LILY.

This is a noble plant, growing three feet high, and bearing at the top of its stems several large white flowers. The stems appear above ground very early in spring.

ORANGE LILY.

This is a very showy Lily, not so tall as the last, but bearing at the top of its stems several large, rich orange-coloured flowers. These Lilies are free-growing plants, very showy, and will stand for years without requiring to be removed.

None of the bulbs that I have mentioned require any care after planting besides that of keeping them clear of weeds. They are not injured by the severest cold; but if the expanded flowers are touched by frost, they will not last long.

STAR OF BETHLEHEM.

This pretty little bulb is found wild in some parts of England: it is, nevertheless, a favourite in most gardens, unfolding numerous star-like white blossoms to the sunny hours of May. It grows about six inches high, having leaves shaped like those of the crocus, but more fleshy. It will grow in any common garden soil, and may be increased by separating the little bulbs produced from the parent roots.

YELLOW GAGEA.

A pretty little bulbous-rooted plant, growing from four to six inches high, bearing one narrow leaf, surmounted by a branch containing a few yellow star-shaped blossoms, which are produced in March, or early in April. It is found wild in England, grow-



STAR OF BETHLEHEM.



ing in groves and pastures, and is easily cultivated.

There are many other bulbs which you may plant with advantage, if you can procure them; but a stock of them would be costly — such are the Spanish, Persian, and English iris; tulips, early and late; lilies; scillas, and gladioluses in great variety.

You have, however, a very fair

assortment already, so that, small as your garden is, you will never, except in the depth of winter, be without at least a few flowers if you bestow on your plants ordinary care, and attend to the directions which I have given you. But if you forget to sow your seeds at the right time, or suffer the plants to grow too large before you transplant them, or neglect to water them in very dry weather (especially soon after removal), or allow vermin to eat away their leaves, you must not lay the blame either on the seed or the soil. You will only be suffering for your carelessness. Negligence in gardening is sure to be followed by disappointment; for although you may gain experience against another year, you cannot possibly retrieve an error. When you have learnt something of the gardener's art, by cultivating your present assortment, I shall provide you with

fresh subjects for your skill and industry. I do not expect that you will all succeed equally well ; for though the soil of all your gardens is alike, and I have given you all the same seeds, I am quite prepared to find every one's garden an index of his character. The dilatory will put off essential operations until they are too late. The thoughtless will forget what ought most to be remembered. The careless will not think it worth while to attend to all of my directions. The impatient will pull up his plants to see if they are growing. The fickle will destroy a growing crop to make room for a new favourite. While those whose character is the opposite of all these will, when Willy comes to pay us a visit, keep very close to his heels, waiting to hear him say, " Whose neat garden is this ? " and to answer by an arch smile, " Oh, that is mine ! "

THE FRUIT-GARDEN.

WHEN my friend Willy was a little boy, his father happened to have in his garden an apple-tree which bore no fruit, and which he consequently cut down and grafted with a kind of apple which he was told was very rare and valuable. In due time the graft produced a fair show of blossom, which was succeeded by a solitary apple. When this was on the point of ripening, Willy was taken one day into the garden, and the apple being pointed out to him, he was told that he was on no account to gather it, as it was to be saved for a special purpose. A few days afterwards, his father going to examine his favourite apple, found it hanging to the tree indeed, but sadly disfigured, nearly half of it being gone. It was very

clear that neither wasps nor snails had been the robbers, for there were plainly perceptible the mark of a small set of teeth; and Willy, though an obedient boy, was immediately named as the probable culprit. "Willy," said his father, "do you know who bit my apple?"—"Yes, papa, I did."—"And how came you to do so, after I strictly charged you not to touch it?"—"Why, papa, you told me only not to *gather* it, and as I wanted very much to taste it, I did not think there would be any harm in my biting out a little bit." Willy, when he grew a little older, was very much ashamed of what he had done, and justly so; for children should make it a rule not even to taste fruit in any garden which is not their own, except they have received express permission.

It is on this condition only that I shall

allow you to walk in my garden when you please ; but, that you may have some fruit of your own, I mean to give each of you, when I can find for you an additional plot of ground, a gooseberry bush, a currant bush, and a dozen strawberry plants, with the produce of which you may do what you like. I shall now give you directions for rearing young plants, so that in the course of a few years you may be able to send to table some good dishes of fruit.

GOOSEBERRIES AND CURRANTS.

In October, when the leaves have fallen off, select shoots, about eight inches long, of the same year's growth, and cut them off with a sharp knife immediately below a bud ; remove two or three inches from the end, and insert the cutting three inches into the

ground in a shady border.* If the shoot be a long one, you may divide it into two, always taking care to remove the top. They will require no further attention till the following autumn, when they may be planted out. Next year, prune them (at any season between the fall of the leaf and the swelling of the bud), by cutting away the leading branch and all the side shoots but three of the strongest, which, if possible, should point in various directions; and these must be cut back to the fifth or sixth bud from the base. The tree will now have a short stem, with three short branches at the top at equal distances from each other. Any branch that grows in a straggling manner should be shortened, and, as a general rule, the shoots which are likely to prevent a free admission of air should be cut away in preference to

* See page 117, fig. *a*.

any others. If your tree gradually acquires the shape of a bowl, you will have pruned judiciously.

The varieties of *Ribes*, which are cultivated for the sake of their flowers, may be raised from cuttings in the same way.

I have selected for you three sorts of gooseberry, Red Champagne, Pitmaston Greengage, and Warrington (red).

STRAWBERRIES.

The varieties of this delicious fruit which I consider to be the best are, Keen's Seedling, Elton Pine, Myatt's Pine, Queen Victoria, Swanstone's Early, Alice Maude, and Black Prince. You may easily increase your stock of these plants by pegging down the runners of those which I have given you. Roots are thrown out from all the knots of leaves on the runners; but you will get the strongest

plants by pegging down those only which are nearest to the parent plant, and cutting off the growth beyond. They will be well rooted by August, and, if planted out, these will probably bear the next season; but September, or even October, will be early enough, if you only want young plants. They thrive best in good rich loam, such as we obtain from the surface of a pasture. They should be planted a foot apart, and in rows two feet apart. When the outer leaves turn yellow or red, fork between the rows, turning in all the decaying leaves and runners which are not wanted; but be careful not to remove any leaves which remain green, as they are employed in strengthening the roots for the following season. When the fruit is beginning to ripen, clean straw may be laid between the rows under the shoots, to protect the fruit from the soil;

but the custom of laying down short grass instead of straw does not always answer ; for if the season should turn out to be a wet one, the grass is liable to rot, and so to impart a mouldy flavour to the fruit.

THE KITCHEN-GARDEN.

I MET my old friend Willy yesterday, and told him that I had set you all busily to work with your flower-gardens. He seemed much pleased to hear of it, and has kindly promised to call in occasionally and give you a hint or two; he also promised to write out for you a set of MAXIMS, which will give you much information about the art you have begun to study. They are to be short, so that you may commit them to memory, and every one will contain practical directions for doing certain things, and will also give the reasons why they should be done. He very wisely says, that if young people are taught the reasons why certain operations are performed, they will in time acquire the habit of asking themselves whether what they are about to do is right

or wrong before they actually set to work. Now I quite agree with Willy, and hope that you will always ask for information about any gardening operation the reason of which you do not understand, provided only that you take care always that you ask, not to satisfy idle curiosity, but to gain knowledge.

Willy and I are quite agreed in thinking that if young people once make gardening their favourite amusement, they will never cease to take an interest in it. There are very few games which boys and girls care about when they are grown up to men and women; but the little gardener will, in all probability, become a great gardener if it please God to spare his life; and the young gardener, when he is grown old, will prefer a seat under the tree that he planted when he was a boy to the richest couch that you

could offer him. He mentioned a striking instance of this in the person of his grandfather.

“Willy’s grandfather!” you say; “why, he must have lived a very long time ago!”

Not so long ago as you think; but you shall hear. He was born in a remote village, and in his earliest years was very fond of working in such a garden as I have given you. His father sent him to sea when he was a boy, and for a great number of years he was an officer in the Navy, and served all through the American and French wars, so that he was exposed in his time to many dangers and hardships. Willy’s recollection of him does not extend to this period: he remembers him living in a town near his children and grandchildren, but in a house to which no garden was attached. He still, however, had a great liking for the amuse-

ment of his childhood, and spent a great deal of time in a neighbour's garden, digging, sowing, and planting, and working at the hundred other occupations which an active mind and an active hand are sure to discover, and to execute well, even in the most perfectly-kept garden. He had now passed his seventieth year, but had still the full use of all his faculties, except that he was growing deaf. This affliction he bore most patiently, "knowing certainly that it was God's visitation;" but as it deprived him of much of the pleasure of society, he determined to retire to his native village, where he possessed a cottage and a tolerably-large farm. The latter he let, reserving for his own use the cottage and the bit of ground in which, sixty years before, he had sown his cress, and radishes, and sweet-peas, but which now was a wilderness of tall weeds.

He also had about a quarter of an acre of ground hedged off from a field; and this he resolved to make his kitchen-garden.

When he had been settled about five years, Willy went to see him. His little cottage was a gem; it was thatched, and had a front as white as snow, with a green porch. In a little slip of ground before it, which was railed off from the road, grew the most luxuriant sweet-peas that were ever seen, all carefully trained to the stems of taller plants. An old-fashioned China rose on one side of the door, and nailed to the wall, was in flower all the year round; on the other side was a tall and bushy myrtle; and a clematis, that perfumed the air for a great distance round, almost concealed the upper part of the white wall. How the front was whitewashed at all was a puzzle that nobody could explain, for the good old

man loved his flowers too well to allow any one to whitewash it for him ; so he always did it himself. His flower and fruit-garden was on the opposite side of the road. Here he had a long bed of strawberries, raised on a bank of stones, and sloping towards the south, all constructed with his own hands ; and to this, perhaps, he gave more attention than to anything else ; for strawberries were the only fruit that his venerable partner cared to eat, and he always had the earliest and finest in the parish. “ The strawberry season was close at hand,” said Willy, “ when I went to see him, and I received a strict charge not to gather any yet, for the first dish was intended for grandmamma. I did not lose anything by attending to the injunction, for they were suffered to remain until they were quite ripe, and grandmamma gave me more opportunities of testing their

flavour than she allowed herself. The rest of the garden was intersected with paths edged with box or polyanthuses, and the beds were filled with roses, carnations, tulips, larkspurs, China asters, and *such* Brompton and ten-weeks stocks as would have won prizes at half the horticultural exhibitions in the country. There were, besides, plenty of gooseberries and currants, and a few old apple-trees. A corner was reserved for brocoli, a vegetable on which he particularly prided himself: the largest was always suffered to run to seed; but I am half inclined to think that (partly, at least) it was kept to be looked at, and to excite the admiration of wondering visitors. Some of the thorns in the hedge were cut down and grafted with pears. 'God knows,' said the old man, 'whether I shall live to eat fruit from them; but if I don't, they will do

somebody good.' I shall never forget this pious remark, or the words that he addressed to me, when, having led me round his little garden, he stopped me, and said: 'Willy, I am too old to enjoy society now: I feel my affliction very much when I am with other people. I see my neighbours talking and laughing, and I do not know the subject of their conversation, and I feel all the more lonely for being in company. I don't like to ask any one what they are talking about, for who cares to be troubled by a deaf old man? so I spend as much time as I can in my garden; I can there find plenty to do, and can think about what I like, and I forget that I cannot hear as well as any one in the world.'

“The larger garden was situated nearly a mile from the cottage, and here was a plentiful supply of potatoes, turnips, onions, cabbages,

and carrots, not a few of which found their way to the cottages of the poor. Now and then the whole of this garden was put into corn, on which occasions, harvest-home was celebrated with all the honours, the old lady being wheeled out in her chair to be present at the reaping.

“When he was in his *ninetieth* year, I again paid him a visit, and met him at his own door, returning from his field-garden, erect, and with a steady gait, and carrying on his right shoulder his spade, rake, hoe, and fork, and in his left hand a large basket of vegetables for dinner. He took me into his garden and showed me the pear-trees that he had grafted twenty years before, ‘that they might do somebody good,’ now loaded with delicious fruit; and then directed my attention to a vigorous fig-tree which had sprung up in the middle of his

garden. 'It bore no fruit,' he said, and he did not know whether it ought to be grafted or not; but he had planted a vine near its roots that he might come out and 'sit under his vine and under his fig-tree.'"*

Here Willy stopped, and I fancied that his voice faltered a little; but as I wanted to hear, as I dare say you do, something more of the venerable gardener, I begged him to go on.

"Not long after," he proceeded, "I was summoned to his bedside: on his way home from the house of a neighbour, to whom he had been carrying a basket filled with the produce of his garden, he chose to come across the fields instead of going by the road, and attempting to climb a gate which, unknown to him, had been taken off its hinges, the gate fell, with him on it, and he

* Micah iv. 4.

dreadfully mangled the back of his head. No one believed that he could live many days, but, to the general surprise, in a few weeks he resumed his labours in the garden. He never, however, thoroughly recovered his strength, and, two years afterwards, I headed a long, very long procession that followed his remains to the grave. He sleeps in the peaceful churchyard of ——, with a slate tablet over his grave, inscribed with a simple epitaph which, after his death, was found in his bureau, in his own handwriting, and was paid for with a portion of a sum of money found in the same place, and assigned by him to the purpose of ‘defraying his funeral expenses, lest,’ as the accompanying memorandum said, ‘any one should be put to trouble about him after he was dead.’ His cottage has passed into other hands, and his garden is become a wilderness again.”

You will think, perhaps, that I have been talking to you a long while when we ought to have been working: but the time will not have been misspent if I have convinced you of the propriety of setting in right earnest about a work which is not intended to be merely a temporary amusement, but a relaxation and an enjoyment as long as you live. You will now see, too, the reason why I shall expect you to give your undivided attention to every single operation we shall take in hand, and to execute it to the best of your ability; for if I suffered you to go through your work carelessly, far from making you good gardeners, I should be only teaching you to be slovenly children, and preparing you to become improvident men and women; for I call all people improvident who only give half their minds to any employment which occupies their time.

You will not at present require particular information as to the management of a kitchen-garden, as your plots of ground are not large enough to admit of the cultivation of either vegetables or fruits. But as I intend to give you an additional piece of ground if you are successful with your flowers, I shall give you a short table of the operations necessary in a kitchen-garden, which you will do well to study with attention. You will learn from it what are the best seasons for sowing a variety of vegetables, as well as a few plain directions for their treatment. Many of them may be sown at other seasons besides by those who have at their command extraordinary means for forcing and protecting them; but I cannot recommend you to resort to any of these until you are thoroughly acquainted with the simpler methods of cultivation.

You will discover the use of my directions by-and-by, when gardening has ceased to be a *mere* amusement, and when you find how much better, and cheaper too, vegetables are when grown in your own garden than when purchased in the market. And even if you should have no garden of your own, you will find it a great privilege to be able, when visiting your poor neighbours, to give them hints for turning their little plots of ground to the best advantage. It is impossible to overrate the value of sound practical knowledge of this kind; for my own part, I do not know how you can confer a greater benefit on a poor labourer than by showing him how he may, with little or no expense, rear enough vegetables in his little garden to be able to add something to his daily meal every day in the year.

JANUARY.—*Sow* Radishes, if you can protect them with litter by night, and during frost by day as well. *Earth up* the Cabbage tribe and Celery on fine days. *Transplant* Cabbages; collect manures and soils in bad weather.

FEBRUARY.—*Sow* Radish again if necessary, a little Cabbage-seed, and Mustard and Cress. *Transplant* Cabbages, if you have any plants left.

MARCH.—*Sow* Broad Beans and Peas, Lettuces and Radishes, Beet, Carrots, Parsneps, and Onions. *Plant* Potatoes, Jerusalem Artichokes, Herbs, Shallots, and Garlic. *Transplant* Cabbage. *Earth up* Celery and crops generally.

APRIL.—*Sow* successions of Peas and Beans, Cabbage, Pickling Cabbage, Brussels Sprouts, Lettuce, Savoys, Scotch Kale, Carrots, Parsneps, Beet (in the last week),

Onions, Spinach, Celery, Cauliflower. *Transplant* Lettuces, Cabbage. *Thin* Onions and Spinach as soon as they are large enough. *Earth up* Peas, Beans, Celery, Cabbages, and other crops requiring it.

MAY.—*Sow* Dwarf Beans, Scarlet Runners, Peas and Beans, all the kinds of Brocoli, Turnips, Carrots, Lettuces, Herbs. *Transplant* the Cabbage tribe. *Prick out* Celery and other seedlings from their beds to strengthen. Weed and thin the coming crops with the hoe.

JUNE.—*Sow* Turnips for Autumn use, Peas and Endive. *Transplant* all the Cabbage tribe, Celery in trenches well manured. *Earth up* Potatoes and all the crops requiring it. *Stick* Peas and Scarlet Runners, and look well to weeding. *Manure* Sea-kale and Asparagus with salt.

JULY.—*Sow* Brocoli in variety, Dwarf

Kidney Beans for succession, Endive, Salads of all kinds, Cabbage, Turnips. *Transplant* the varieties of Cabbage, Brocoli, Savoys, Brussels Sprouts, and Celery. *Prick out* all young seedlings. If any onions and Shallots have done growing, pull them up, and dry them on their beds before storing them away. *Earth up* Potatoes and other forward crops, and gather herbs for drying.

AUGUST.—*Sow* Spinach, Cabbage, Onions, Radish, Lettuce, and Cauliflower. *Transplant* all the Cabbage tribe—Brocoli, Cabbages, Pickling Cabbages, Savoys, and Brussels Sprouts, Celery, Endive, Lettuces. *Earth up* crops in general; and take up Onions for storing.

SEPTEMBER.—*Sow* Salads for use, and Winter Spinach. *Transplant* winter greens of all sorts, Lettuce, Endive. *Pull up* Onions, if any remain not yet stored.

OCTOBER.—*Sow* Cabbage of all sorts. *Dig up* Potatoes, Carrots, Parsneps, Beet, &c., and store them in sand to protect them from frost. *Earth up* anything that wants it. *Hoe out* winter Spinach to make room for other crops.

NOVEMBER.—Vacant ground may be filled with plants of the Cabbage tribe; Celery and other crops may be earthed up; but with these exceptions there is little to do in the garden. As for Beans and Peas, they are a precarious crop if sown at this season, and give more trouble than profit.

DECEMBER.—When the weather permits, dig, manure, and trench; during frost collect the soils and manures likely to be useful; but I do not recommend much winter gardening. Keep crops of winter greens neat and clean, and well *earthed up*; Celery, too, must be *earthed* as fast as it grows.

WEEDS.

I SHOWED you the best method of weeding when I gave you your tools. It only remains that I should caution you against using the hoe carelessly; for you may, by an inconsiderate blow, cut off some valuable plant, or, what is yet more likely, make an unsightly gap in a crop, which will occasion the loss of the ground for a whole season.

The principal weeds you will find in your garden are, the dandelion, sow-thistle, shepherd's-purse, chickweed, groundsel, and plantain. They are all very prolific; that is, they bear seed freely, and shed it rapidly, so that they should never be allowed to bloom in a garden.

The *dandelion* has a root like horseradish, and the smallest piece of it grows so readily

that when we are troubled with this weed, we ought to dig all the root out; but constantly cutting off any plant as soon as it appears above ground will kill it in time. The dandelion bears a number of smooth, toothed leaves, which spread upon the ground, and have a texture very like that of the lettuce. Its large, yellow flowers grow on hollow, leafless stems, and are succeeded by globular heads of down, which eventually separate into small single tufts, to each of which is attached a seed. A very light wind will waft these away and lodge them in all parts of the garden. Particular care must therefore be taken that these are not allowed to run to seed.

The *sow-thistle*, or milk-thistle, is a tall, rapidly-growing plant, with hollow stems and yellow flowers, which are also followed by cottony heads of seed, to be dispersed by the



SOW-THISTLE.

wind. This is easily got rid of; but we are always liable to be favoured with seeds from a great distance, and therefore may always find some of it.

These countless plants coming up like small salad are *shepherd's-purse*: look at some of the most forward, with their little bunches of small white flowers; some of the outer ones have already formed their heart-shaped pods of seed. A fortnight's neglect of these very plants, which seem hardly a fortnight old, would shed hundreds of seeds in addition to the immense number with which the ground appears already full; for every time the earth is turned up, there is just such a crop as this, although they are always hoed up and destroyed before they seed. A neglected garden will get so full of weeds, that it may take years of hard work even to thin them; besides, it appears that the seeds

of these prevailing weeds will live for many years in the ground, and whenever they are brought up within the proper distance from the surface, they will vegetate, so that, without any fresh supply, some will grow every time the earth is turned or disturbed. The mere stirring of the earth that is necessary to remove them will bring other seeds within the influences that cause germination.

The *chickweed* comes up, as you see, nearly as thick as the last in some parts of the border: it is a low spreading plant, with small, starlike flowers, and is very troublesome, from its tendency to get entangled with anything that grows near it, so that very often it can be only removed by hand.

Groundsel is another tiresome weed, because it is no sooner in flower than it begins to seed. Its seeds, like those of the dandelion and sow-thistle, are attached to a cot-

tony substance, which buoys them up in the air, and carries them to a great distance; but thousands of seeds are washed down into the ground on the spot by the rains, so that it ought never to be allowed to flower. It is too well known to need any description.

Plantain is a broad-leaved plant, spreading almost flat on the ground, and sending up long spikes of little round seed-vessels sitting close to the stem. It is a curious fact, that these last three weeds are great favourites with tame birds, and almost every one that keeps birds supplies them with one or other of them. It once happened to me that a certain herb-bed, in which grew mint, thyme, sage, and marjoram, was constantly becoming overrun with these three weeds, and for a long while I could not discover the reason; but the mystery was cleared up when I discovered that when the bird-cages

were cleaned out, the refuse was always thrown away upon this bed.

There are many very troublesome weeds besides these,—the *grasses*, for instance, which will grow anywhere. Their seeds are light, and are blown about in all directions. They live for years in the ground, and, as they vegetate when brought up to the surface, are, in fact, more plentiful than any other weeds; consequently, any piece of ground left idle will soon be covered with grass, whatever other weeds may be also among it; and so strong are the various grasses, that they will in time overcome almost everything else, so that a bare field, if neglected, would soon assume the appearance of a coarse pasture.

The *bindweed*, a species of wild convolvulus, is a very troublesome weed: it has long creeping roots, or rather underground stems,

which are very brittle and most tenacious of life. The stems are long and wiry, and support themselves by turning round any plants that may happen to grow near them, not only hiding them from sight, but strangling them. So mischievous are they, that if they have been suffered to establish themselves in a shrubbery, they will quickly injure, or even kill strong and vigorous shrubs. This and couch-grass, or stroil, are the greatest enemies, as weeds, the gardener has to contend against; for they will entangle themselves among the roots of other plants: in which case they can only be eradicated by clearing the roots of the plants to which they have attached themselves. They should therefore be picked up as soon as their leaves appear above the ground,—care being at the same time taken to remove every particle of root, or they will grow again.



FIELD CONVULVULUS.

The *field convolvulus* is another very mischievous weed, which can scarcely be eradicated after it has once established itself in a

garden. The roots are tough, and creep widely; the flowers are very pretty, light pink striped with red, and fragrant.

These directions will enable you to distinguish some of the worst kinds of weeds, but long experience alone will enable you to detect them all. You will sometimes, perhaps, discover that you have been expending your pains in nursing an unsightly weed, for which you have rooted up a favourite plant, the habit of which, in its young state, was unknown to you. This will teach you the necessity of accurately observing the characters, not only of full-grown plants, but of the tenderest seedlings: you must learn also to distinguish weeds by their first leaves, and master them before they have mastered you. The gardener, who does not begin to clear away weeds until they have thoroughly established themselves, may be

compared to a medical man who does not prescribe remedies for a disease until it has assumed its most virulent characters.

It may be well for me, perhaps, to touch on one point which is sometimes important, and the knowledge of which will be always useful. There are certain plants not often cultivated in gardens, but which will intrude sometimes, and which are poisonous, or at least noxious weeds; you must become acquainted with these, and I will mention the chief, that you may be careful in avoiding them.

The principal are, *bryony*, a climbing plant, with red berries and fleshy poisonous roots; *fool's-parsley*, sometimes mistaken for parsley; *butter-cups*, well known to all children; *henbane*, distinguished by its clammy leaves and large, cream-coloured flowers with purple eyes; *monkshood*; *fox-*



BRYONY.

glove; *deadly nightshade*, remarkable for its large, drooping bell-shaped flowers of a livid

purple hue; *nightshade*, or *bittersweet*, a straggling plant, with dark purple and yellow flowers, shaped like those of the potato; *hemlock*, easily detected by its flat heads of white flowers, finely-cut leaves, and hollow stems spotted all over with red; *thorn-apple*, or *stramonium*; *spurge*, distinguished by its milky, acrid juice; *lords and ladies*, or *cuckoo-pint*; *hellebore*; and all the kinds of toad-stools, some of which have been mistaken for champignons and mushrooms, and been fatal to many.

The *foxglove*, both the purple and white varieties, may be introduced with advantage into a large garden, especially at the back of a border in a shrubbery; but this is the only one.

In weeding, the hoe, as I have already told you, is your main dependence; when you have finished a piece of ground in the

manner that I have described, have recourse to your rake, which you must move to and fro till you have broken all the lumps of earth which you have turned up, and finally clear the bed both of weeds and stones.

As we are upon the subject of raking, I must show you the different uses of the rake. When ground is fresh dug, it is of course uneven and full of lumps. The use of the rake is to bruise these lumps, and to level the surface; you will sometimes find it convenient to turn the teeth upwards, and to hit the lumps with the back, so as to break them; then gently push and pull the rake over the surface to draw off the stones. But we have yet another use for the rake; when seed is sown evenly over the surface instead of in rows, it is called "sowing broadcast;" it is then necessary to rake the surface all over, making the teeth penetrate

the earth to the depth of a quarter of an inch. By these means little furrows are formed and immediately filled up again, so that the seeds fall into the furrows and are covered up.

When the seeds are to be sown in drills, the drills are made of the requisite depth with the corner of the hoe; but since few persons can make these furrows straight without some guide, the garden line is used for the purpose. The iron spike being first stuck into the ground, the reel is carried to the spot to which the line is to be drawn, and when it, too, has been stuck into the ground, the line is tightened and made fast; the hoe is then drawn along close to the string, and a straight furrow is insured. One furrow having been completed, you may, by removing the spike and reel over equal distances, mark the

whole of your ground with parallel lines; and in order to make sure of your distances, you should use a stick cut to a length equal to the space which you desire to have between your furrows.

When you sow seed in these drills, you must sprinkle them thinly and evenly, but peas and beans you should lay in at equal distances; peas two inches apart, French and broad beans six inches, and scarlet beans a foot. The drills for the beans should be two inches deep, those for small seeds only an inch and a half. Now you find the rake of use again, because you can just rake in enough of the loose earth to cover the seed well and no more, and the back of the rake is useful in breaking the lumps if necessary. You observe that these directions apply generally to the sowing of all kinds of seed, and to the hoeing and

weeding of them after they are up. The small crops might just as well be sown broadcast, but that they would be more troublesome to hoe and thin out, because there would then be no rows to guide you.

The hoe is also of great use in an important, though simple operation, namely, earthing up. The whole of the cabbage family, including brocoli, cauliflower, cabbages, savoys, &c., will throw out new roots as high up their stems as earth is allowed to reach; all these crops, therefore, should be earthed up as soon after planting out as they have begun to grow. To perform this operation, you should stand on one side of the row of plants, and, putting your hoe into the ground a foot beyond the plants, draw the earth up to their stems to the height of four or five inches, so as to form a sort of bank on one side. You must then make a

similar bank on the other side of the row, and you will have a ridge of earth with the plants rising through it. These soon avail themselves of their newly-acquired power of forming fresh roots, and grow vigorously in consequence. Peas and beans should be earthed up while very young, to protect their tender stems against frost and cold, and drying winds. Celery is earthed up as fast as it grows, to whiten the stems, which would otherwise be green and too strongly flavoured to be eatable.

We now come to some peas which are two or three inches high and require support. These little dead branches are intended for the purpose: stick them into the ground about a foot apart and three or four inches from the row, so that they may slope over the peas. Now stick some in on the other side, opposite the vacancies left on

this side, and let them slope in a contrary direction. Some peas, which grow very tall, require sticks six or eight feet high, instead of two or three feet; they must also be wide enough apart from row to row to allow of a person's going between to gather them; six feet is not too much for some kinds. Whatever you sow, consider beforehand what the size and habit of the future crop will be.

I will now show you some of the minor operations with which it is necessary that you should be acquainted. This bass-mat, which is made of the inner bark of the lime-tree, makes the best sort of tie we can get for general use in a garden. Some of these lettuces will be forwarded a week by tying up all the leaves close, because the plant will continue growing in the heart, and as the tie will prevent the outer leaves from

giving way, the heart will grow firm and white in a few days. The bass is strengthened a little by being twisted, and yet more by being soaked in water. Gather up the leaves of the most forward plants, and pass the matting two or three times round them before you tie it, and they will soon acquire the character I have described. They should be tied close, but not too tight. Cabbages are sometimes treated in the same way very early in the year, but never after they come regularly into season, because they then readily heart of themselves.

I will now show you planting, or rather transplanting, on a larger scale than you have yet attempted it. This piece of ground will do very nicely for planting out savoy plants and Brussels-sprouts. Having first selected the strongest plants, put in the spike of your line a foot from the edge of

the piece of ground, unwind the line as you cross to the other side, give the line two or three turns round the spindle, and thrust it in, so that it may be very tight. Take the dibble in your right hand, having the line between your feet; now thrust in the dibble close to the line, and when it is down, twist it half-way round and back, thus preventing the earth from sticking to the dibble; take out the dibble, hold the plant in your left hand against that side of the hole which is nearest the line; thrust the dibble into the ground an inch from the hole, so as to close the earth against the plant; half fill the second hole you make by pressing earth into it, and complete the row in this way, putting in a plant at intervals of two feet. Then move your line two feet down the bed, and proceed in the same way; taking care, however, that instead of putting the plants

small plants that are so crowded are cabbage, cauliflower, kale, Brussels-sprouts, and different kinds of winter greens. Wherever the colour and form of leaf vary a little, there is a different kind of plant: these all require to be pricked out, as it is called; that is, planted a few inches apart in another bed. Here is a bed four feet wide prepared for the purpose: you need not use a line, because it does not matter much if the young plants should happen to be a little out of the line. What they require is a space of from four to six inches across for each. You see they are within an inch of one another in their seed-bed, so that the change must benefit them. Take your smallest dibble, and make the holes not more than two or three inches deep: begin to work at the side of the bed, planting one close to the edge, and four more towards the centre, about six

inches apart, in a line to cross the bed. This little bit of stick is just six inches long : don't use it to measure by; but let it lie by you, that your eye may be familiar with the right distance : when you have planted half your plants, or rather more on this side, go over to the other and repeat the same operation ; contrive to get in one row near the edge, and three more towards the centre ; these will in a month or six weeks be strong and fit to plant out where they are to remain. When you have practised this a little, you will become used to lines and distances, but as these nursery-beds are always kept out of sight, you can make the pricking out a sort of practice : in the garden, however, where crops are to stand until they are perfected, it would not do to show any want of order or uniformity. You may water these plants that are close together with a watering-pot

with the rose on, but when the plants are at some distance apart, you must pour a little into every hole, and for this purpose you should leave a hollow close to each plant, when you dibble it in.

DESTRUCTION OF VERMIN.—By vermin, gardeners mean all kinds of living things which prey on, or injure, their crops; and I shall now give you some hints on this subject.

Slugs and *snails* are great enemies to every kind of garden-plant, whether flower or vegetable; they wander in the night to feed, and return at daylight to their haunts: the shortest and surest direction is, “rise early, catch them, and kill them.” If you are an early riser, you may cut them off from their day retreat, or you may lay cabbage leaves about the ground, especially on the beds which they frequent. Every

morning examine these leaves, and you will find a great many taking refuge beneath; if they plague you very much, search for their retreat, which you can find by their slimy track, and hunt there for them day by day. Lime and salt are very annoying to snails and slugs; a pinch of salt kills them, and they will not touch fresh lime: it is a common practice to sprinkle lime over young crops and along the edges of beds, about rows of peas and beans, lettuces, and other vegetables; but when it has been on the ground some days, or has been moistened by rain, it loses its strength.

As for *caterpillars* and *aphides*, a garden-syringe or engine, having on the pipe a cap full of very minute holes, will wash away these disagreeable visitors very quickly. You must bring the pipe close to the plant, and pump hard, so as to have considerable

force on, and the plant, however badly infested, will soon be cleared without receiving any injury. Every time that you use the syringe or garden-engine, you must immediately rake the earth under the trees, and kill the insects you have dislodged, or many will recover and climb up the stems of the plants. Grubs on orchard-trees and gooseberry and currant-bushes will sometimes be sufficiently numerous to spoil a crop; but if a bonfire be made with dry sticks and weeds on the windward side of the trees, so that the smoke may be blown among them, you will destroy thousands; for the grubs have such an objection to smoke, that very little of it makes them roll themselves up and fall off; they must be swept up afterwards.

Wasps destroy a good deal of fruit; but every wasp killed in spring saves the trouble

and annoyance of a swarm in autumn: it is necessary, however, to be very careful in any attempt upon a wasp, for its sting is painful and lasting. In case of being stung, get the blue-bag from the laundry, and rub it well into the wound as soon as possible. Later in the season, it is customary to hang vessels of beer, or of water and sugar, in the fruit trees, to entice them to drown themselves.

Butterflies and *moths*, however pretty, are the worst enemies one can have in a garden; a single insect of this kind may deposit eggs enough to overrun a tree with caterpillars, therefore they should be destroyed at any cost of trouble. The only moth that you must spare is the common black and red one; the grubs of this feed exclusively on groundsel, and are, therefore, a valuable ally of the gardener.

Earwigs are very destructive insects; their favourite food is the petals of roses, pinks, dahlias, and other flowers. They may be caught by driving stakes into the ground, and placing on each an inverted flower-pot, containing a little moss; the earwigs will climb up and take refuge under it, when they may be taken out and killed. Clean bowls of tobacco-pipes placed in like manner on the tops of smaller sticks are very good traps; but best of all are hollow stems of hemlock, or cow-parsley, open at each end, placed among the plants which they frequent. These should be examined every morning, and the earwigs blown out into a basin of hot water.

Toads are among the best friends the gardener has, for they live exclusively on the most destructive kinds of vermin. Un-
sightly, therefore, though they may be, they

should on all accounts be encouraged ; they should never be touched nor molested in any way ; on the contrary, places of shelter should be made for them, to which they may retire from the burning heat of the sun. If you have none in your garden, it will be quite worth your while to search for them in your walks and bring them home, taking care to handle them tenderly, for, although they have neither the will nor the power to injure you, a very little rough treatment will injure them ; no cucumber or melon frame should be without one or two.

You see already that there are plenty of things always waiting to be done in a garden besides the more important operations of preparing the soil, sowing, planting, &c. Many more will occur to you in the course of practice ; walk round your garden at any season and you will find something which

requires your attention, and when you have left off work, and walked round once more, you will be sure to find enough to occupy you on your next visit ; for instance, there is hardly a fine day in the year that you may not plant out cabbages if you have any in the nursery or seed-beds. Radishes can be produced almost at all seasons by sowing, watering, and, if in winter, protecting them from frost by litter ; the ground should never be idle, it should be dug and left rough rather than be empty, for it derives little benefit from the air and rain while it is hard on the surface.

THE PARTS OF A PLANT.

I SHALL now enter upon another division of my subject, not relating entirely to the practice of gardening, but, nevertheless, very important.

I told you the other day that I should wish you to be able to give a reason for every gardening operation that you perform. There are many gardeners, I fear, who, although they work very industriously, and keep their gardens in excellent order, often fall into great errors from not having formed the habit of thinking why it is desirable that certain things should be done in a particular way, or even why it is necessary that they should be done at all. The consequence is, that they now and then find their crops turn out in a very different way from what they

expected, and do not know how to set matters to rights on another occasion. Now I wish you never to rest contented with knowing that it is right for you to do so and so, but to find out the reason for the very simplest operation. This you will not be able to do without being first acquainted, to a certain extent, with the science of Botany. I do not mean by Botany merely the being able to call plants by very long and very hard names, of which you cannot yet know the meaning ; but I think it highly desirable that you should be able to carry in your minds a correct general idea of the principal parts of a plant, and of the use of each part. Willy's Table of Maxims will give you a good deal of information on this point, for you will find that every one of them contains some practical direction founded on what he has learnt, either from reading or personal

observation, to be a fact. All the Botany that I wish you to study at present is a collection of such facts, and I think you will be the better able to recollect them if I present them to you in a connected form, even although you should discover some of them again among the Maxims.

I will then describe the principal parts of a plant, and the most remarkable functions of each.

THE SEED.

If you remove the shell and inner skin from a hazel-nut or filbert (Fig. 1), you will find that the kernel easily separates into two pieces throughout nearly its whole extent, being held together at the smaller end by a small body, which tapers towards each of its extremities. This little body is called the

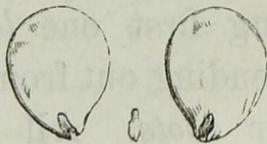


Fig. 1.

germ, and may be compared to a bud containing the rudiments of a tree like that from which the nut was taken. The two larger portions are termed the *seed-lobes*, and contain enough nourishment to support the young plant until it has formed roots and leaves, and is able to provide for itself. The kernel, or seed, has no tendency in itself to alter its form if kept dry and exposed to light; but if buried a little way beneath the surface of damp earth, it swells and bursts its coverings; the seed-lobes are changed into green fleshy leaves, and between them the germ lengthens upwards and downwards, expanding first one *leaf* and then another, and sending out from its lower end downy fibres or *roots*. All the nourishment which it receives at present is derived from the enlarged seed-lobes, called *seed-leaves* in this stage of their growth; consequently, if they

are destroyed, the young plant perishes likewise. In such plants as the pea and broad-bean, the seed-lobes never rise above the surface of the ground.

The *true leaves*, which shoot up between the seed-leaves, are generally different in

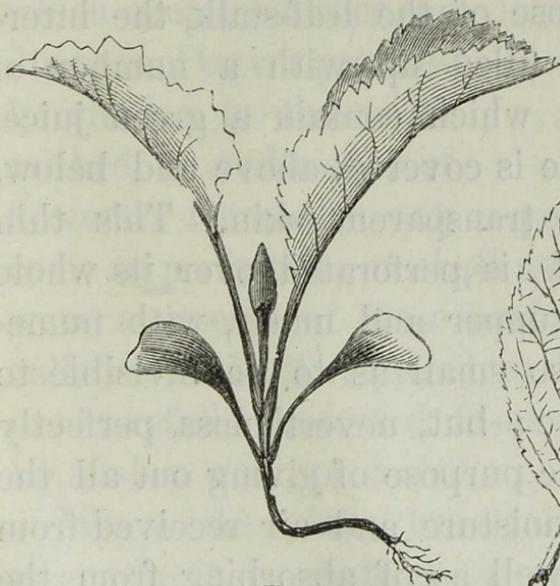


Fig. 2.

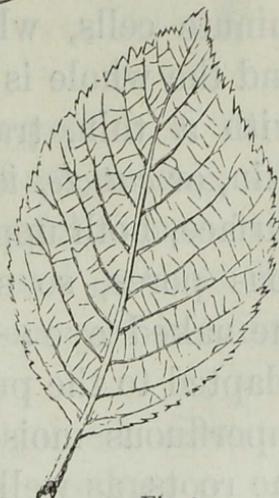


Fig. 3.

form from the seed-leaves, as may be observed in the young cabbage-plant (Fig. 2).

The stem which supports the leaf, called the *leaf-stalk* (Fig. 3), is a collection of tubes enclosed in a thin rind, and destined to convey juices and air upwards and downwards between the leaf and the stem. The flat part of the leaf is composed of a network of tubes like those of the leaf-stalk, the interstices being filled up with a number of minute cells, which contain a green juice, and the whole is covered, above and below, with a thin, transparent skin. This thin skin, or *cuticle*, is perforated over its whole surface, both upper and under, with numerous pores, so small as to be invisible to the naked eye; but, nevertheless, perfectly adapted to the purpose of giving out all the superfluous moisture and air received from the roots, as well as of absorbing from the atmosphere all that it contains necessary for the growth of the plant. The leaves also

perform the function of preparing the various juices which are destined for the use of all parts of the plant; they are, consequently, as important as the roots.

At the base of every leaf is a *bud* (Fig. 4), which contains either rudiments of leaves precisely similar to those described, or rudiments of



Fig. 4.

flowers. Generally, only a portion of these come to perfection, most plants having, as it were, a reserve of these useful organs to be called into life if required, and in trees they are carefully protected from cold in winter by scales, wool, or resin.

When the plant has gained size and strength, it is enabled to produce a new organ, yet more delicate and complex than the leaf; this is the *flower*, or *blossom*. A

perfect flower in its natural state consists of a green cup, or *calyx*, the leaves of which, if there be more than one, are called *sepals*; the *corolla*, the coloured leaves of which are called *chives*, or *petals*; *stamens*, and *pistils*. The beauty of the flower mainly depends on the perfection of the “corolla;” the production of seed depends exclusively on the presence of “stamens” and “pistils.” The art of the florist consists in increasing the number, size, regularity, and bright tints of the “petals.”

In the rose (Fig. 5), the *calyx* consists of five *sepals*, which remain attached to the plant after the petals have fallen off; the primrose has a calyx of one leaf, divided into five *segments* (Fig. 6); the tulip has no calyx.



Fig. 5.



Fig. 6.

The *corolla* of the poppy consists of five *petals* (Fig. 7); that of the primrose has but one, which is divided into five *segments* (Fig. 8); and some plants have no corolla, but these are rarely cultivated by gardeners.

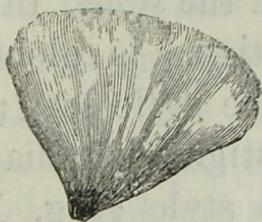


Fig. 7.



Fig. 8.

A *stamen* consists of three parts: the *filament*, which is a thread of tubes for conveying nourishment to the other parts; the *anther*, a case usually of two cells, which, when ripe, burst and shed a quantity of fine powder, called *pollen*, or *farina* (Fig. 9). The honeysuckle contains five such stamens; the poppy a countless number.



Fig. 9.

The place of the *pistil*, or, if there be more than one, of the *pistils*, is in the very centre of the flower. Its summit is called the *stigma*, and its lower part the *germen*, and these are generally separated from one another by a third part, called the *style*. In the primrose, the stigma is globular (Fig. 10) and the style long; in the poppy, the stigma is radiated, and there is no style (Fig. 11).



Fig. 10.

The germen contains the rudiments of the *seed*, and when enlarged is usually called the *seed-vessel*, or *fruit*. No flower can produce perfect fruit unless some portion of pollen fall on the stigma; therefore, few *double flowers*—that is to say, flowers in which the stamens and pistils have been changed by excessive cultivation into petals—produce seeds. In the case of dahlias, China asters,



Fig. 11.

&c., there would seem to be an exception to this law; but it is only an apparent one; for what is called a single dahlia or a single China aster is not in reality one flower, but an assemblage of small flowers or *florets*, of which the yellow central ones are furnished with stamens and pistils, and the spreading, petal-like ones are furnished with pistils only. Consequently, when the central florets are changed into spreading florets, they still continue to have pistils, and are capable of producing seeds, provided that pollen, either from the same flower, or from another flower of the same kind, falls on them. But in the case of a double stock or wallflower, both stamens and pistils are wanting; these flowers, therefore, are always barren.

This is as much as is necessary for you to know at present about the structure of a plant; but if you desire to become a good

gardener, it will be necessary for you to make the science of Botany your study; and you will find that every new discovery in one science throws light on the other.

MAXIMS.

GROW nothing carelessly ; whatever is worth growing at all is worth growing well.

Many kinds of garden-seeds lose their vegetative power if kept over the first year ; be sure, therefore, to sow none but new seeds.

Melons, cucumbers, and other plants of the gourd tribe, form an exception to this rule ; their seeds should not be sown until they are several years old, for they will then produce plants with scanty foliage but abundant fruit.

The seeds of most weeds will retain their

vegetative power for an unlimited number of years; take care, therefore, that all weeds are burnt, or, at all events, that they are not thrown on piles, from which they would be liable to be brought back to the garden.

The first leaves which appear above ground (called the seed-leaves) are the sole nourishment of the young plant until it has acquired roots; therefore, if they be destroyed or seriously injured, the young plant must die.

Seeds will not vegetate unless within the influence of moisture, air, and heat; be careful, therefore, not to sow your seeds too deep, or they will never come up.

Little good is obtained by saving your own seed from common annuals and vegetables; your ground is worth more to you for other

purposes than the cost of the quantity of seed which you will require ; besides which, you will have a better crop from seed raised in a different soil.

The roots of very young plants are not strong enough to bear removal : the best time for transplanting seedlings is when they have made from four to six leaves ; for by this time the roots will be able to perform their proper functions.

Plants when exposed to the action of light transmit moisture copiously through their leaves ; transplanted seedlings, therefore, and cuttings should be shaded from the sun until their roots are strong enough to supply moisture as rapidly as it is thrown off.

Roots require that air should be admitted to them ; the surface of a clayey soil should therefore be disturbed as often as it begins to cake.

Let unoccupied ground be left in as rough a state as possible during the winter, in order that a large surface may be exposed to the frost, and the soil become thoroughly loosened.

Frost takes effect more readily on roots that have been dug up than on those which are left in the ground ; therefore, either give your store roots complete protection, or let them stay in the ground.

All plants absorb from the ground different juices ; a constant variation of crops is therefore indispensable.

Leaves absorb and give out moisture, and inhale and exhale air; they are consequently the most important organs of a plant, and if they are destroyed or injured, the whole plant suffers.

The pores in the leaves of the plants, by which they transmit moisture and air, are exceedingly minute, and liable to be choked by exposure to dust, and especially soot; delicate plants should therefore be placed out of the reach of smoke, and if their leaves become soiled they should be washed with soap and water.

The branches and leaves of plants rarely touch another while growing in a state of nature: learn from this not to crowd plants too much in your beds; air and light are as necessary to them as earth and water.

The throwing-off of its leaves by a newly-planted cutting is a sign that growth has commenced; on the contrary, when leaves wither on the stem, it is a sign that the plant has not strength to perform the natural function of throwing them off.

When shrubs produce an abundance of foliage, but no flowers, either move them to a poorer soil, or cut through some of the principal roots.

Dry east winds are injurious, by absorbing moisture from the leaves of plants more rapidly than they are prepared to give it out; weather of this kind requires to be guarded against more than the severest frost.

If a grass plot becomes overrun with moss, manure the surface, and the grass will gain strength so as to overcome the intruder.

In all cases of pruning, cut towards you, beginning a little below a bud, but on the opposite side, and ending just above the bud ; by this means the wood will be kept alive by the bud, and no water will be able to settle about it and cause it to rot.

Leaves shaded from the light do not acquire depth of colour or strength of flavour : gardeners take advantage of this fact, tying up lettuces and earthing celery, that they may be white and mild.

Light is necessary to flowers that they may acquire their proper hues ; therefore, when kept in rooms, their place should be as near to the window as possible.

All plants have a season of rest ; discover what season is peculiar to each, and choose that season for transplanting. It cannot be while they are blooming ; therefore, avoid transplanting anything while it is in this stage of its growth.

Plants are in their most active state of growth while in flower : avoid transplanting them at this period, for in all probability they will suffer from the check.

On the contrary, choose the period of flowering, in preference to any other for taking cuttings, as they are then most active in forming roots.

Plants when in bloom have all their juices in the most perfect state ; choose, therefore, the period of their beginning to flower for cutting all aromatic and medicinal herbs.

Profuse flowering exhausts the strength of plants ; therefore, remove flower-buds before they expand from all newly-rooted cuttings and sickly plants.

No plants can bear sudden contrasts of temperature ; therefore, bring nothing direct from a hothouse to the open air ; warm weather should be chosen even for bringing out plants from a greenhouse.

Remove all dead flowers from perennials, unless you wish to save seed ; the plants will thus be prevented from exhausting themselves.

To procure a succession of roses, prune down to three buds on all the branches of some trees as soon as the buds begin to expand ; defer the same operation with others

until the leaves are expanding: in the former case, the three buds will bear early flowers; in the latter, they will not begin to expand until the others are in full foliage, and will bloom proportionally later.

By checking the growth of plants, you throw strength into the flowers and fruit; this is the reason why gardeners nip off the terminal shoots of beans and other such vegetables: on this principle, too, is founded the valuable art of pruning.

Generally speaking, the smaller the quantity of fruit on a tree, the higher the flavour: therefore, thin all fruits in moderation, but avoid excess; a single gooseberry on a tree or a single bunch of grapes on a vine—no matter how fine it may be—is a disgrace to good gardening.

Fruit should always be gathered in dry weather, and carefully laid in baskets, not dropped into them : the slightest bruise will cause fruit to decay.

All bulbs and tubers should be placed in the ground before they begin to shoot ; if suffered to form leaves and roots in the air they waste their strength.

Never remove the leaves from bulbs after flowering until they are quite dead : as long as the leaves retain life they are employed in preparing nourishment and transmitting it to the roots.

Vegetables that are valued for their juiciness and mild flavour should be grown quickly ; the reverse should be the case when a strong flavour is required.

Though rapid growth is desirable in succulent vegetables, this is not the case with most flowering shrubs, which form bushy and, therefore, handsomer plants when grown slowly.

Few plants thrive in stagnant water; potted plants should therefore always have a thorough drainage of broken pots or brick, and should not be allowed to stand in damp saucers: they require but little water during the winter; but when they begin to grow they should be liberally supplied.

Plants in pots are more liable to be injured by frost than plants in the ground which are exposed to the same temperature, because the fibres of their roots cling to the sides of the pots and are soon affected; if they are kept out of doors during the winter, bury the pots in the ground.

All garden-hedges should be kept clear of weeds ; or, when the latter run to seed, they will supply your garden with a stock against the next season.

Finally, whether you sow seeds, water the young plants, or reap the produce, remember that you are dependent for all on God's Blessing ; with all your care and industry you will find yourselves sometimes disappointed when you least expect it. He has been pleased to ordain that certain results shall ordinarily follow from certain labours in the tillage of the ground, reserving to Himself the power of setting your industry at naught, in order to remind you that "man doth not live by bread alone, but by every word that proceedeth out of the mouth of God," whether that word command the earth

to bring forth abundantly, or whether it
“send forth the cankerworm to eat what the
caterpillar has left.”

INDEX.

- Aconite, Winter, 124.
Allotments, 8.
Anemone, 49.
Annuals, 62.
Anther, 203.
Aphides, 103, 189.
Auricula, 39.
- Bass-mat, 182.
Bee-Larkspur, 31.
Bindweed, 170.
Biennials, 54.
Bittersweet, 176.
Border plants, 18.
Brompton Stock, 59.
Bryony, 174.
Budding, 94.
Buds, 201.
Bulbs, 125.
Butter-cup, 174.
Butterflies, 191.
- Calceolaria, 32.
Calendar of operations, 159.
- Calyx, 202.
Canterbury Bell, 59.
Caterpillars, 101, 189.
Chickweed, 168.
China Aster, 72.
Chinese Hollyhocks, 22.
Christmas Rose, 123.
Chrysanthemum, 25.
Columbine, 29.
Convolvulus, 74, wild, 170, 172.
Coreopsis, 79.
Corolla, 203.
Crocus, 125.
Cuckoo-pint, 176.
Currant, 141.
Cuticle, 200.
Cuttings, 99, 112.
- Dahlia, 48.
Daisy, 41.
Daphne, 120.
Deadly Nightshade, 175.
Delphinium, 80.
Dielytra, 35.

- Double flowers, 204.
 Drills, sowing in, 178.

 Earthing up, 180.
 Earwigs, 192.
 Eranthis, 124.
 Eschscholtzia, 82.

 Field Convolvulus, 172.
 Filament, 203.
 Flax, 86.
 Floret, 205.
 Flower, 201.
 Fool's Parsley, 174.
 Forget-me-not, 50.
 Foxglove, 175, 176.
 Frost, effect of, on soil, 13; on
 plants, 19.
 Fruit-garden, 139.
 Fuchsia, 107.

 Gagea, 134.
 Germ, 198.
 Gooseberry, 141.
 Grasses, 170.
 German Aster, 73.
 Germen, 204.
 Groundsel, 168,
 Grubs, 101, 190.

 Heartsease, 43.
 Hellebore, 176.
 Henbane, 174.
 Hepatica, 41.
 Hemlock, 176.
 Hoe, use of, 176, 180.
 Hyacinth, 129.

 Indian Pink, 58.

 Jasmine, yellow, 121.
 Jonquil, 131.

 Kitchen-garden, 146.

 Larkspur, 31, 80.
 Layering, 98.
 Leaf, 199.
 Leaf-stalk, 200.
 Lily, 133.
 Linum, 86.
 Lords and Ladies, 176.
 Lupine, 27, 69.

 Maxims, 207.
 Mignonette, 63.
 Milk-thistle, 165.
 Monkshood, 174.
 Monthly Calendar, 159.
 Moths, 191.
 Myosotis, 50.

 Narcissus, 132.
 Nasturtium, 82.
 Nemophila, 68.
 Nightshade, 175, 176.

 Orange Lily, 133.
 Oxlip, 39.

 Pansy, 43.
 Parts of a Plant, 195.
 Pentstemon, 35.
 Perennials, 18, 20.
 Petals, 202.

- Phlox, 23.
Pink, 46.
Pistil, 204.
Plantain, 162.
Pollen, 203.
Polyanthus, 37.
Pricking out, 186.
Pruning, 100.
- Raking, 14, 177.
Ribes, 143.
Rose, 92.
- Salvia, 32.
Seed, 197.
Seed-leaves, 198.
Seed-vessel, 204.
Shepherd's Purse, 167.
Slugs, 188.
Snails, 188.
Snapdragon, 20.
Snowdrop, 127.
Sowing Seeds, 87, 178.
Sow-thistle, 165.
Spurge, 176.
Stamens, 203.
Stigma, 204.
Star of Bethlehem, 134.
- Sticking peas, 181.
Stock, 59.
Stramonium, 176.
Strawberries, 143.
Style, 204.
Sweet-William, 57.
- Ten-weeks Stock, 71.
Thorn-apple, 176.
Thrift, 46.
Toads, 192.
Transplanting, 109, 183.
Tree-Mignonette, 63.
Tropæolum, 82.
- Vermin, 188.
Violets, 51.
- Wallflower, 55.
Wasps, 190.
Weeds, 12, 164.
White Lily, 133.
Willy's Grandfather, story of, 148.
Winter Aconite, 124.
- Yellow Gagea, 134.
Zinnia, 84.

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58



