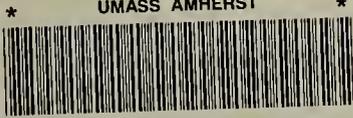


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THE COTTAGE GARDENER;

OR,

AMATEUR AND COTTAGER'S

GUIDE TO OUT-DOOR GARDENING

AND SPADE CULTIVATION.

CONDUCTED

BY GEORGE W. JOHNSON, ESQ.

EDITOR OF THE "GARDENER'S ALMANACK," "MODERN GARDENER'S DICTIONARY," ETC.

THE FRUIT-GARDEN, by Mr. R. ERRINGTON, Gardener to Sir. P. Egerton, Bart., Oulton Park.

THE KITCHEN-GARDEN, by the EDITOR, and Mr. J. BARNES, Gardener to Lady Rolle, Bieton.

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TO OUR READERS.

HEARTILY, though briefly, will we thank you for the support you have bestowed upon us ; and for having thus enabled us to complete the First Volume of THE COTTAGE GARDENER so prosperously as to leave us without any anxiety but how to render its future pages still more useful. To effect this, no effort on our part shall be absent ; and if, to sustain this effort, we obtain your continued patronage, and that blessing without which the pen and the spade are plied in vain, we shall effectively pursue our course through years to come, rejoicing at our success in diffusing, among even the humblest cultivators of our native islands, sound Practice, guided by Science, and not untinted by Religion.

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THE
COTTAGE GARDENER.

INTRODUCTORY.

WE do not offer THE COTTAGE GARDENER to the public without having well considered the suggestion which gave it birth. That suggestion was in these words:—"All England has and loves its OUT-DOOR GARDENING, but where is there a periodical that devotes attention and space to promote its advancement, even equally with that of the other departments of Horticulture which, from their costliness, are only within the reach of the comparatively few?"

In our reply, we confessed we knew of no such periodical; and we now purpose to supply what is felt to be a very prevalent deficiency.

Our pages will appear every Thursday, and will be devoted chiefly to OUT-DOOR GARDENING,—to those branches of the art in which not only all delight, but which all have the means of pursuing.

Utility is our prime object; we wish to improve the gardening of the many, and we shall concentrate in our pages the information which will be acceptable and useful to every one who has space sufficient for a bed of cabbages, a row of currant-trees, and a flower-border. Whilst no gardener, we believe, will turn from our pages without receiving some ray of light, yet we shall especially trim our lamp for the amateur of moderate income, and the cottager. To them, columns devoted to the Pine Stove, and Orchidaceous house, offer little interest, and less instruction: it is giving knowledge, but knowledge that with them is inapplicable.

The information we have to offer to our readers will be presented under another aspect; we shall endeavour to teach them how to grow the most and the best crops on the plot beneath the sway of their spades.

We shall bring to their notice the varieties distinguished for qualities most desirable; we shall particularize the modes of culture found to be most successful; we shall point out the most appropriate manures, with the modes of applying them most

economically; and we shall detail the rotation of crops which have been found advantageous on various soils.

Particular attention will also be paid to the diseases of cultivated plants, and to the insects which attack them, for the purpose of pointing out the most successful modes of avoiding their ravages.

It will be readily understood, that we especially address ourselves to those who have gardens of moderate extent. In the plotting or arrangement of these there is much more opportunity for the display of skill and taste than most people take for granted; and lengthened observation enables us to say confidently, that nine-tenths of our village and cottage gardens are so planned as to require much more labour than is necessary, and to be devoid of many beauties they might economically possess. To remedy these deficiencies we shall occasionally furnish plans of such gardens as we can recommend as models.

To enable us to attain these objects, we have secured the aid of some of the best practical men of the day; and to facilitate their labours we solicit assistance from all others of like acquirements, whether professional or amateurs, but, in all we examine and all we recommend experience shall be our touchstone.

No one values the services of science more highly than we do. We well know that it points out and illumines the path of the Gardener; it aids and sustains him in his progress along that path—but the path itself is Practice. Upon this we shall place our foundation; and when the first year of our labours closes, we hope it may be under the conscious feeling that we deserve at least as much praise as "the citizen who made two blades of grass grow where only one grew before." Swift says, that such a man is more meritorious than the most subtle of politicians; and we shall claim praise, at all events, not more equivocal, if we know a garden in which the Cabbage has been more productive, the Apples more abundant, and the Mignonette more enduring, from information gathered in our columns.

WEEKLY CALENDAR.

M D	W D	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun	Day of Year.
OCTOBER 5—11, 1848.								
5	Th		9 aft. 6	27 aft. 5	10 35	1st Qr.	11 38	279
6	F	Faith. Botanical Society of London's	11 "	25 "	11 34	9	11 56	280
7	S	[Monthly Meeting.	13 "	23 "	morn.	10	12 13	281
8	SUN	16 SUNDAY AFTER TRINITY.						
9	M	St. Denys.	15 "	21 "	0 39	11	12 30	282
10	Tu	Oxford and Cam. Terms begin.	16 "	18 "	1 49	12	12 46	283
11	W	Old Michaelmas Day.	18 "	16 "	3 4	13	13 2	284
		Holly.	20 "	14 "	4 21	14	13 17	285

PHENOMENA OF THE SEASON.—Mr. Stillingfleet, in 1755, says that in Norfolk, on the 1st of this month, the berries of the holly and hawberry were fully ripe.—2nd. The fruit of the sloe was ripe. Mr. Jenyns says, that, on average of ten years' observations made at Cambridge, the leaves of the walnut begin to fall on this day.—3th. Catkins of salallows formed (Stillingfleet;) walnuts ripe, and birch

leaves begin to fall (Jenyns).—6th. Leaves of aspen almost all off; of chestnut, yellow; of birch, gold-coloured (Stillingfleet).—7th. Beech leaves begin to fall.—8th. Cherry leaves begin to fall (Jenyns).—9th. Berries of spindle-tree ripe; some ash-trees quite leafless; leaves of marsh-elder beautifully pink (Stillingfleet).—11th. Ash leaves begin to fall (Jenyns.)

INSECTS.—The Figure-of-eight moth (*Episema cerula-cephala*) appears early this



FIGURE-OF-EIGHT MOTH.

month. The bluish grey upper wings have a yellowish white spot in their centres. The spot being shaped like a double kidney, or 8, gives the popular name to the insect. It should be destroyed whenever observed, as its caterpillars, at the end of the following spring, very often destroy the young leaves of plums and peaches.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.
5	Cloudy.	Fine.	Fine.	Fine.	Fine.	Cloudy.	Fine.
6	Fine.	Fine.	Rain.	Fine.	Cloudy.	Rain.	Fine.
7	Fine.	Cloudy.	Cloudy.	Fine.	Rain.	Showery.	Showery.
8	R. n.	Fine.	Cloudy.	Fine.	Cloudy.	Showery.	Fine.
9	Ov-cast.	Cloudy.	Rain.	Cloudy.	Showery.	R. n.	Rain.
10	Rain.	Fine.	Fine.	Showery.	Rain.	Rain.	Rain.
11	Fine.	Fine.	Rain.	Fine.	Rain.	Rain.	Showery.

The Week's Fruit-Gardening.

In commencing a Periodical which has for its object the dissemination of sound gardening practice, adapted to all who cultivate a garden, we have marked out a course by which we hope to render the subject readily familiar to the humblest cottager. We shall, therefore, on all occasions, avoid the use of technical terms.

In endeavouring to lead the mind to a careful consideration of those first principles which may be considered the key to the gardening art, we shall at the same time abstain as much as possible from the use of scientific terms: that is to say, in all cases where terms of a familiar or conversational character can be found sufficiently expressive.

A plain style will, therefore, best secure the end in view; and as the day is gone by for rules based on custom only, we shall lay down a course of culture, which is the result of some forty years' practice, accompanied by vigilant observation, and a due attention at all times to the improvements of the day.

THE PLANTING SEASON.—We would in all cases advise early Autumn planting of fruit-trees, with the exception of the vine and the fig, provided the soil can be prepared in a mellow state. In the case of stubborn clayey soils, however, the business had best stand over until the spring; but the soil may be thrown out immediately, and by lying exposed the whole winter will be much improved for planting purposes.

Preparations, therefore, may be made forthwith; and in order to proceed in a business-like way, the amateur and cottager should look over their existing stock, in order to see whether any decaying or worthless kinds should be destroyed. Another matter requires attention each succeeding autumn. However complete the arrangement might have been considered at the preceding planting-season, farther improvements will annually suggest themselves—not only as to the

choice of individual trees or bushes, but as to the line of succession which the garden at large offers.

All these things duly considered, stakes should be put down at the respective stations where a tree is required, and a number marked on the stake referring to a list containing the selection previously made.

CHOICE OF TREES.—It frequently happens that some trees or bushes have to be purchased from the nursery-gardens; when such is the case, we would look them out at this period, and cause them to be marked with matting, which is the ordinary practice in nurseries. By these means, very superior trees may be secured at the same price as the ordinary ones; for in general a fixed price is charged, whether for dwarf trees or standards; and as purchasers continue to select, of course a very inferior sample falls to the lot of those who come last.

The amateur who wants a peach, a nectarine, or an apricot-tree, should be very scrupulous in his choice. Some of those trees which look very lusty and promising in the nursery, are at the same time very unfit for permanent trees. The first point in selection, we need hardly say, is general health of constitution. This is evinced by healthy shoots, by a clear bark, and by a total absence of gum. A second is a thorough and equal union of stock and scion: if durability is required, the two should be nearly equal. If the scion overgrows the stock, the tree will be fruitful betimes, but may not be expected to endure so long. Another, and most essential affair, is, that the young trees be well balanced; that is, that the number and strength of the branches on each side be nearly equal. Any great disparity in point of vigour between the two sides of a trained tree, is with difficulty overcome afterwards. It can, indeed, only be done in the growing season, by frequent stopping of the growing points: of this, however,

more in due time. Thus far the amateur. We will now offer a few words of advice to both amateur and cottager.

CHOICE OF APPLE-TREES.—Canker is perhaps the greatest enemy we have to encounter in the apple. A practice has prevailed in some nurseries—and we hope that by this time it is nearly exploded—of attempting to render cankered or diseased trees saleable, by cutting their main shoots back. Trees thus treated will produce strong shoots for the first year, which too often tempt the inexperienced. After being planted a year or two, however, they revert to their original state of disease, in nearly all cases. Such, of course, should be avoided; and they are readily known by having very long shoots on a very thick old stem. These remarks apply chiefly to dwarf trees intended for espaliers.

Another great fault in standard apple-trees is a thin and sickly stem. This is frequently the case in obscure country nurseries, and arises, we conceive, merely from the mode of training. Our better sort of nurserymen make a practice of “spurring in,” or shortening, the side-shoots, whilst the grafted shoot is forming the stem of the standard. Some country nursery gardeners cut such side-shoots clean away at once, but spurring in, according to the other practice for a year or two, much increases the strength and thickness of the stem.

CHOICE OF FLEMISH PEARS.—As to form or figure, everything depends on the mode of training. If for the pyramidal mode, (having the form of the Larch,) they should of course have some length of stem; if for a low horizontal trellis, they should have a pair of leaders at least, to turn right and left: care should be taken to select none with decayed points—some of the kinds are liable to this defect.

FRUITS WHICH SHOULD BE MORE ENCOURAGED.—The Morello cherry is one of the most useful of our hardy fruits, yet it is seldom found in the garden of the amateur to any extent, and scarcely ever in that of the cottager. It is adapted for either the ordinary rough espalier or for walls or fences. On a south wall it attains a degree of flavour which would astonish many persons who had been in the habit of tasting it from cold aspects. It will, moreover, if carefully netted, hang well on the tree until the middle of October. It is one of the surest fruit-bearing trees we possess—bearing with certainty, even on a northern aspect. Trained as a rough espalier, it may be covered with a net, and be servicable for many weeks for making tarts. It prefers a deep and somewhat unctuous loam. Cottagers would do well to pay some attention to its cultivation, as it would succeed to admiration on any gable which would prove too cold for the apricot or the pear.

PLUMS.—There are some very old kinds of plums which are deserving of a very extended cultivation; of such are the Morocco, and the Preeoce de Tours.

These are two of the surest-bearing plums in the kingdom, and they ripen very early. We have never grown them on common standards, but we have no doubt of their answering admirably, and also of their proving a profitable crop for the cottager. The Washington also might be planted as a standard by the latter class, being very hardy, of strong growth, and a full bearer.

THE BLACK CURRANT.—Where the soil is of a moist character, or even a very adhesive loam, this proves a most profitable crop to the cottager. It frequently succeeds by the side of such ditches as become tainted with the wash from the house or the pig-stye. There are boggy nooks in some gardens of a damp character, which could scarcely be better employed than under this crop.

FILBERTS.—We would remind the amateur, that such are worth adding to his stock of fruits, provided means are taken to dwarf them and to ensure their bearing. To accomplish this, they must be on a single stem; the head must be formed in their earlier stages like a currant-bush, open in the centre, and all superfluous young shoots which, crossing each other, obstruct light and air, pruned away—the stronger shoots at the extremity shortened, and, above all things, suckers kept down. The white and red filbert the frizzled filbert, and the Cosford, are the best.

FRESH OR MAIDEN SOILS.—Those whose gardens are of a sterile or exhausted character should take care to provide some fresh soil for planting new trees in—the more turf or coarse grass it contains, the better. It should be rough chopped over, and any ordinary vegetable soil, weeds, or decayed vegetables, may be blended with it.

ACCELERATING THE RIPENING OF THE WOOD.—Those who possess vines, peaches, nectarines, and apricots, should now take every means in their power to ensure the ripening of the wood. Where trees have been neglected in their summer pruning, a trimming should now be resorted to, although late. All late growths, and all superfluous points of young shoots which shade the principal leaves, may be cut away. The vine—especially out of doors—will require every lateral, or side-shoot, to be pinched away; and even those side-shoots which had been stopped to a single eye in the end of June, may now be entirely displaced, in order to throw some light on the early-made leaves, and, even at this period, on the fruit. Those amateurs who have canvas or bunting at command, would do well to cover their vines, about four o'clock in the afternoon, while the sun shines on them. In the event of dull days, however, it need not be applied until six o'clock.

GATHERING FRUITS.—We will merely allude to the necessity of paying a constant attention at this period to this needful proceeding; in our next we will offer some farther advice, also more ordinary calendarial matter.

R. ERRINGTON, *Oulton Park.*

The Week's Flower-Gardening.

THE culture of flowers is one of the most delightful and healthful recreations to which man can devote the powers of his mind and body. Even those who thereby earn their daily bread, may enjoy pleasures that the mere mechanic or artisan is debarred from by the very nature of his labours. The clear light of heaven, the sweet fresh air, and the beauties of the objects of the gardener's care, are all sources of the

most unalloyed pleasure; and it is a wise dispensation of the Giver of all good, that those delightful pleasures are within the reach of all. To the lady or gentleman florist, to the gardener by profession, to the amateur and the cottager, the flower-garden is, or may be, if the proper spirit is brought into action, an elevating pursuit. We who have tasted those pleasures for nearly half a century, being desirous to in-

crease the taste and instruct the ignorant, propose to give a weekly essay on the subject; and if we can by such labours make the culture of flowers more general, and the practice more easy, our object will be accomplished, and we shall think our attempt will have been a mite cast into the treasury of human happiness.

THE FLOWER-GARDEN.—Under this head we shall class those gardens where a gardener or gardeners are employed. At this season of the year the floral beauties are in a great measure departing. Our chief care ought to be, to keep everything clean and neat. Cut down all decaying flowers, tie up the remainder, and keep the lawn short and clean swept, so that on fine days the garden may present a cheerful appearance. In the Frame-garden the auriculas and polyanthuses should have as much air, and be kept as dry as possible—removing all decaying leaves as fast as they appear. All stores of verbenas, petunias, calceolarias, and other things to plant out in spring, require the same treatment. Keep large numbers of those plants, so as to have an abundant supply in the spring. It is much better to have a few to spare than to have to propagate them when they are wanted. Chrysanthemums will now be in flower, and should be well tied up, or the autumnal winds will damage their beauty.

AMATEUR'S FLOWER-GARDEN.—There are a large number of individuals who, loving a garden and having leisure time, devote a part of it, very wisely and properly, to the cultivation of flowers. Perhaps a still greater number would enjoy this rational recreation if they had the requisite information how to set about it.

Supposing you have a garden of moderate size, and pretty well stocked with the usual quantity of flowers, you should resolve to do everything in its proper season, and do it well and thoroughly. If possible, have by you in a snug corner the following soils, in such quantities as you may judge necessary: some good loam, vegetable mould (decayed leaves), peat soil, and rotten dung, with a small heap of pure sand. Excepting the last, which should be kept in a shed quite dry, let the others be turned over occasionally in dry weather, and always kept free from weeds. These materials are almost indispensable. Have also all kinds of tools in readiness, kept in a shed or toolhouse, quite clean and in good order. Where this is not the case, when you come to your garden you will find your tools work badly, and will soon be tired of using them. Pay particular attention, then, to this head: keep your tools clean, and every one in its proper place. You will find this a great comfort and convenience to you in your gardening operation.

COTTAGE FLOWER-GARDEN.—However humble may be the cottager's dwelling, the addition of a border or two of flowers gives it an air of comfort that to a rightly constituted mind is exceedingly pleasing. The culture of those flowers must exercise upon the cottager's mind the best effects: but we would not confine this pleasure to the labourer in the field or the dweller in the country only. Our mechanics and artisans, the workers in the busy factory, in the congregated masses of human beings of our large towns: these ought to have a flower-plot each; to have something growing in the open air of heaven to draw their minds from sensual, besetting indulgences;—something to cultivate, watch, and care for,—to delight in and love. The two flower-gardens are two distinct things: one adjoining the cottage, the other in a field let out in small lots. The dwelling-

houses of the mechanic are, as is well known, in general in streets and lanes, where land is too valuable to be spared for gardening purposes: hence it becomes necessary to the poor man loving a garden to have one in the field, at as short a distance off as possible; and we earnestly wish that the owners of land near large towns would be more liberal in their grants of land, for the purpose of giving the artisan so inclined an opportunity of having a small garden for flowers as well as vegetables. We know, and rejoice that there are many persons enjoying such small gardens; but we would wish their number to be greatly increased, to meet the wants of our growing population. Having said so much about the desirableness of the cottager's flower-garden, we will now say a few words about the means of furnishing it with plants. It is not to be expected that the cottager or mechanic is able to purchase many or very choice plants; but one man can spare a few pence to buy a root, and another can buy a different one: the two can then propagate from their respective purchases, and have the power to exchange. This principle, carried out on a large scale, would furnish plants sufficient for a great number of gardens. Seeds of biennials (two-year-living plants) might be purchased in the same manner: one man would buy sweet-williams, another bollyhocks, another wallflowers, and so on to an almost unlimited extent. Then the day of exchanging comes—and what a pleasant affair that would be! how many kindly feelings excited—what pleasing smiles—what admiration of each other's garden and flowers! Would that such scenes were ten thousand times more common than they are!

FLORISTS' FLOWERS.

THE question may naturally enough be asked, What are "Florists' Flowers?" To those who cultivate them the term appears simple and proper; but a number of persons use it without properly understanding it. In their minds, to the cultivation of any kind of ornamental plants, the term "Floriculture"—or the culture of florists' flowers—would apply; but "Florists' Flowers" are such as have been improved, either in *form*, *colour*, or *size*, or in all those qualities combined. It is true those gems of the earth are all beautiful, some exquisitely so, and that art cannot improve them: we might mention, as examples, the majestic, lovely, white lily, with its sweet, unrivalled flowers of purest white; the humble, but sweet-scented violet; and the lily of the valley. These are familiar, and well known to all; but, on the other hand, just glance at the wild tulip, and heart's-ease, or pansy,—the single carnation and pink, the polyanthus and auricula,—and the most prejudiced mind must allow that their beauties have been greatly improved by the florist's skill and unwearied perseverance. It is a remarkable fact, that the beautiful varieties now so much admired are principally raised by men in very humble life—men who earn their daily bread in the close workshop or the damp mine. It is also a curious fact, that our agricultural labourers have paid almost no attention to the raising of new varieties of florists' flowers. Of late years, indeed, the example of our shoemakers, tailors, and colliers, has been followed by men in higher ranks of life—by none more conspicuously than the Rev. Mr. Tyso, who has done more for the "ranunculus" than any other cultivator we know of. There are also some commercial men who have added to their other operations of cultivating fruit and forest trees for sale, the culture

of "Florists' flowers;" and it is now becoming the fashion in almost every garden to attempt a little in this delightful art; yet the meed of praise is justly due to the artizans above mentioned—they were the pioneers in the art of producing florists' flowers, and we fervently hope that the cultivators of those lovely ornaments may be increased tenfold. We are quite satisfied that thereby the happiness of man will be increased—the mind will be weaned from more debasing pursuits, and led to admire the goodness of the Author and Creator of all that is lovely on earth!

The subjects for this part of our work may be classed as follows:—ANEMONE, AURICULA, CARNATION, DAHLIA, POLYANTHUS, PINK, PANSY, RANUNCULUS, ROSE, TULIP.

TULIP.—At this season of the year the preparation for planting this favourite flower should be in a state of forwardness. The situation for the tulip-bed should be open to the full influence of the sun and air. If there is a hedge, or other shelter, on the north and west side of the bed, so much the better. The best soil is a light sandy loam, mixed with a small portion of very rotten manure: by no means make it too rich, or the colours will run. Turn this soil, so mixed, frequently. The bed should be well drained with a layer of rubble; and immediately over the drainage put a thin layer of littery dung, to keep the soil quite separate from the drainage; then put in the

soil, to the depth of fifteen or sixteen inches. The bed should be raised, either by an edging of boards or slate, about six inches above the walks, and, when the soil is first placed in, it should be two inches above the edging, so as to allow it to settle and be pretty nearly level to the edging by the time of planting. The best time for that operation being about the first week in November.

AURICULA AND POLYANTHUS.—These should now be placed in their winter quarters, (or frame,) removing previously all decayed leaves, and stirring up the soil gently with a small fork or stick. No water is now required, and full exposure to sun and air on all fair days will be beneficial.

CARNATION.—This beautiful class of florists'-flowers require considerable attention. They should now be in pairs, in five-inch pots, and placed in frames fronting the south. Examine them carefully every day, to see that no mildew or wireworms are preying upon them. Very little water is required.

PINK.—Equally beautiful with the carnation, and much more hardy, is the graceful pink. At this season pinks have been planted out in their situation for blooming. A similar compost to that for the tulip will suit them, with the addition of a portion of leaf-mould. They require but little care; only keep a look-out against snails and wireworms, and destroy them.

T. APPELBY.

The Week's Kitchen-Gardening.

BORECOLE AND BRUSSELS SPROUTS.—Plant a large bed, if not done last month. The heads and sprouts will keep the table supplied throughout the spring. The Brussels sprout, above all others of the cabbage tribe, should be now cultivated, not only on account of its great excellence, but because of its very large produce. The French express this valuable quality by naming it "The Thousand-headed Cabbage." When dry weather occurs at this season, it is a plan almost indispensable for securing success to soak with water the bed in which the seedlings are growing; to fill the hole made by the dibble with water before inserting the plant, and to have the planting-time late in the afternoon.

The only objection to the Brussels sprout is that it is not quite so hardy as the Savoy, but it is more capable of enduring severe frost than most kinds of brocoli; and very rarely does a winter occur in southern or midland England which the Brussels sprouts cannot endure. Then it has these great merits—its sprouts grow close to the stem, so that the plants may be nearer together than Savoys; and M. Van Mons is quite correct in observing that it grows well in situations generally unfavourable to the success of the cabbage tribe,—as between rows of potatoes and scarlet runners, or even among young trees. The bottom leaves of Brussels sprouts of advanced growth should be taken off to encourage the sprouting.

CABBAGES.—Plant the main crops of those sown in August. The produce will be for table use from May to the end of July of next year. The same precautions in planting are required as mentioned above for borecole. The ground should be deeply trenched, and it is very desirable that it be laid up high, in narrow beds, so as to avoid the necessity of being trampled upon; for it remains under this crop for nearly twelve months, and the ground, even of itself, becomes more conso-

lidated than is beneficial to the roots. Employ the strongest plants, and plant two feet apart each way. If strong early-sown coleworts* are at hand, plant a row between each two rows of cabbages, and a plant between each two cabbage-plants. These coleworts will be useful to pull up for early spring use; and the outside leaves, when potatoes are short, would be useful, boiled, for a pig; or given raw to a cow. If neither be kept, let the leaves be trenched into any spare ground as manure. Take care to fill every spare piece of ground with plants of some kind, for very possibly articles of food may be both scarce and dear next spring.

CAULIFLOWERS SOWN IN AUGUST may be so treated as to afford a successional produce during June and July of next year. If some of the plants are taken up, their roots trimmed, and, being potted, are plunged in the earth under a cold frame until the end of February, to be then turned out under hand-glasses, their heads will be fit for use early in June. Those plants which are now pricked out upon a south border and left unmoved until the end of March, and are then finally planted out, will produce heads at the end of June; whilst a third portion of plants pricked out at the end of the present month, and not moved to their final bed until mid-April, will be fit for table in the early part of July.

CARROTS, when ripe, may now be taken up and stored in a little dry sand, or without sand, if stored in a cellar, or tolerably dry place.

LEEKs.—Plant; and hoe frequently between those planted in previous months. The soil for the leek cannot well be too rich, and certainly cannot be dug too finely, for it delights in an open soil. In transplanting these and other plants with similarly fleshy

* **COLEWORT** (*Collet* in some places)—a cabbage, previously to its heart becoming firm; and to be eaten in that young state.

brittle roots, the trowel is a tool far preferable to the dibble. Make the hole for the plant with the trowel, and then move the leek with the same implement, so that the earth about the roots is fitted to the hole previously opened.

KIDNEY BEANS yet bearing may be prolonged in that state for some weeks longer by arching over the rows with sticks, and protecting them with a mat at night.

LETTUCES, sown in August, prick out as close as possible, either under a frame, or, without that shelter, on a very dry border, facing the south. The best varieties for thus standing through the winter are the Brown Dutch, Brown Cos, Hardy Hammersmith Green, and Green Cos. In planting out injure the roots as little as possible.

LOVE APPLES.—Gather during dry weather. Cut off a portion of the stalks with each; tie them at short intervals along strings, and fasten these by their ends to the opposite sides of a dry room, near the ceiling.

ONIONS.—Autumn-sown onions should be kept free from weeds; and a little dry earth or dust shook or sifted amongst them, to establish firmness and healthiness.

STORE ONIONS should be cleansed and turned about, and the defective picked out.

PARSLEY.—Cut down, that it may produce fresh vigorous leaves before the winter stops its growth.

POTATOES.—Those who have potatoes and intend planting again, should now set about it; for that spring planting is worthy of little dependence must have been well tested by many, of late years. At Bicton we have had this season most abundant crops, of good quality, from those planted last autumn; and for several previous years the autumn-planted have been the only potatoes of good quality and abundant in produce.

RAOISHES (TURNIP).—Sow on a warm south border, or on an asparagus bed that has had the stems cleared away and received its autumn dressing. They will grow milder, and continue longer good here than on any other soil. The white Spanish and the large purple are the best varieties for sowing at this season.

SPINACH.—The surface soil of the winter spinach should be kept open and healthy, to prevent its canker-ing.

LATE-SOWN TURNIPS should be encouraged by frequent hoeings, and thorough cleansing established in every corner, and well maintained at all times and seasons, which is the only sure means of eradicating and preventing the ravages of vermin.

JAMES BARNES, *Bicton*.

POTATO PLANTING.

It will be seen from the statement of Mr. Barnes, that even in Devonshire, one of the most rainy counties of England, and in 1848—after a summer the wettest and most ungenial for the potato within the memory of any middle-aged man—the potatoes planted the previous autumn were those which alone gave good crops; those planted in spring having failed there as they have failed elsewhere throughout the length and breadth, not only of England, Ireland, and Scotland, but of many parts of Europe. For three years the Editor of *The Cottage Gardener* has adopted the same time for planting the potato, and with signal success. Whilst his neighbours around are losing more than half their crops, and even those stored will be for the most part lost—and that chiefly from an erroneous mode of storing—the Editor has not had one in twenty diseased; and those he has had stored, being done so in a mode which prevents unnatural heating

and premature sprouting, will continue good, as they continued last year, from September until the following June. From long experience, confirmed by numerous experiments and the experience of others, the Editor urgently recommends the following rules for growing the potato—rules which, if strictly followed, will restore the constitution of the plant, and render it as safe a crop as any other that can be cultivated by the spade:

1. Never allow your potatoes to be uncovered by the earth for a single day; but as they are taken up, place them in alternate layers with earth, wherever you intend to keep them through the winter. The heap thus formed must be brought narrowing to the top, like the roof of a house, and covered over a foot deep with earth to exclude the wet and frost.

2. Plant at the end of October, or early in November, during open, dry weather. Dig only enough ground for a row, and then insert the sets with a dibble, for this keeps the ground from being hardened by trampling. Eight inches is the safest depth in the midland and northern counties, but six inches is a better depth for the southern counties. If planting is deferred till the spring, six inches is the best depth everywhere; and be sure to keep the potatoes covered in single layers with earth, and earth only, until the very day of planting. There is no loss of ground by planting in autumn, for rows of cabbages and savoy's may be planted between the rows of potatoes.

3. Plant moderate-sized whole potatoes; that is, potatoes weighing about two ounces each.

4. Plant on ground that does not require the application of manure at the time of planting, but that is in good condition from manure applied to the previous crops. Never grow the potato two years following on the same plot.

MANAGEMENT OF SOIL.

A soil will never get exhausted, if managed with skill, but would continue to improve in depth and fertility in proportion to the industry bestowed upon it. The food of plants, it is true, may be exhausted from the soil by a repetition of cropping with any one family of plants, if we neglect the application of such fertilizers as may have been taken from the soil by that family; but no part of the growing season is required for the soil to rest, or lay fallow, if judiciously managed by a successional varying of the crops, or supplying to them such food as may be a compensation for what has been taken off by the previous crop. The first object to be attained for securing a certain and profitable return of produce from the soil must be *thorough drainage*;—the next object is, *breaking into the subsoil* to the desired depth—not without first considering whether it is proper and profitable to shift or turn up the subsoil at once to the influence of the atmosphere, or whether it is best to break into it well first, by shifting the surface soil, and allowing the subsoil to remain to receive—first the beneficial influence of the atmosphere, and then—at the next trenching, a portion of the subsoil may be safely stirred up and mixed with the surface soil; this practice continued for every succeeding crop, will establish a healthy fertilizing surface soil to any desired depth. If repeated successional surface stirrings are adopted, according to the nature of the soil and weather, every growing crop will continue in healthy luxuriance, without either suffering or receiving injury from too much moisture, drought, or frost. In addition, by constantly scarifying, hoeing, and forking the surface soil, not only obnoxious insects and their larvæ are expelled, but weeds would never

make their appearance, much less have a chance of committing their accustomed robbery of the soil and crops. Besides, by such repeated stirring, the soil is always prepared, sweet and healthy, for succeeding crops;—no mean consideration, either when we observe the loss of time and produce occurring to such a ruinous extent in some localities, by allowing weeds to rob and choke the growing crops, and to shed their seeds, productive of a progeny similarly injurious to the crops next in rotation.

The application of manures is most essential, and may be applied most beneficially when the soil is established in a healthy condition, and maintained thus by a constant attention to surface-stirring. Yet the application of manure is a secondary consideration, for though it may be very liberally applied, and with considerable expense, yet, without first insuring the healthiness of the soil, much property and labour will be sacrificed.

J. B.

Miscellaneous Information.

CHEAP MANURES.

[No. I.]

EVERY substance which increases the fertility of the soil into which it is dug or mixed, is a manure. Even sand may be a manure, for when mingled thoroughly with a heavy, clayey soil, it improves its staple, makes it more open, helps to enable all superfluous water to escape from it, and thus keeps the earth warmer, for wet soils are cold soils; and it in other ways makes the crops upon it more productive. Sand, therefore, is a manure for heavy soils. However, we only mention this to impress upon our readers, that when we talk of manures we do not mean the dung of animals only.

It is quite true that unless a soil is kept deeply, thoroughly, and constantly stirred, either by the spade, fork, or hoe, half the benefits derivable from any manure are lost. This is no new notion, for even Cato, who lived some two thousand years ago, said, in his book (*De Re Rusticâ*) on cultivating the soil, "What is the most important part of farming?—to plough. What is the next most important?—to plough. The third is to manure."

But though quite true that to stir the soil often and deeply, is one of the most important practices of all cultivation; yet unless we return to the soil by manuring it, what our crops have taken from it by their roots, it will soon become incapable of yielding anything but weeds.

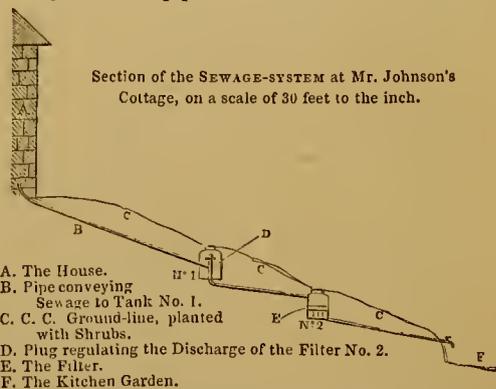
Every gardener is fully aware of this—and no complaint is more common, both with the amateur and the cottager, than of the expense and difficulty of obtaining a sufficient supply of manure; and yet that difficulty arises from their own waste and neglect. If all the night soil, vegetable and animal refuse, soap-suds, etc., were as carefully preserved in Great Britain as they are in China, each household would have a store of manure nearly sufficient for fertilizing the garden ground required for supplying that household with vegetables. We shall recur to this important department of cultivation more in detail, but at present will do no more than request attention to the following very valuable and useful communication upon the subject.

FILTERED HOUSE SEWAGE.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S., ETC.

IN erecting, last year, a cottage at Waldronfield, near Croydon, I took the opportunity of testing a plan for employing the sewage of the house (I use the word sewage in this Paper in its most extensive sense) for the use of the garden, which has succeeded so well that I think it might be employed in most situations, with the required modifications, with the same measure of success. For although, in my case, I have the advantage of a considerable fall between the house and the kitchen-garden, yet that circumstance is not essential to the success of the plan: for even in the case of a perfect level, it would only be necessary to add a com-

mon iron lifting pump to the second tank; or the object might be accomplished by even one tank only, if furnished with a division. My plan was to test the possibility of filtering the *entire* sewage of the house through a filter of sand sufficiently fine to remove almost all the mechanically suspended matters of the sewage, so as to render the filtered liquid available as a rich liquid manure, without being offensive to those who had the use of the garden. For this purpose I had two tanks, constructed of bricks and mortar, and lined with Parker's cement, of about five feet cube each. Into the first, marked No. 1. in the annexed plan, *all* the sewage of the house is discharged, through an iron pipe of 4½-inch bore. This tank is



furnished with an iron pipe of the same diameter, which (regulated by a long-handled plug from the top of the tank, marked *D*) discharges the sewage as it is needed from the tank No. 1. into the tank No. 2. This lower tank is also of a cube, equal to about five feet in diameter. This is furnished with a filter, through which the liquid portion of the sewage finds its way, and is thence drawn off from the bottom of the tank by means of iron pipes of ¾-inch bore, to convenient places in the garden. The filter (*E*) is placed (resting on bricks) about eighteen inches from the bottom of the tank: the bottom of the filter is formed of perforated tiles, used by maltsters for their kiln floors; on this is laid a layer of gravel, about two inches thick, on this about two inches of coarse sand, and on the top of the sand (to prevent disturbance by the rushing in of the sewage from the upper tank) another layer of the maltsters' tiles. Thus constructed, the sewage finds its way through the filter with sufficient rapidity for the copious supply of the Kitchen-garden. As thus prepared, the liquid manure passes through, so as to possess but little smell, and without leaving any obnoxious appearance on the surface of the ground. I need hardly say that the effect of this liquid is exceedingly powerful; and we have noticed it as remarkably so in the case of some newly-planted

beds of asparagus and rhubarb, which have been irrigated with it; and, in fact, there is no doubt of its value for ensuring the rapid growth of all kinds of newly-planted culinary vegetables. I have so arranged the pipes in my kitchen-garden, that I can irrigate to any portion of it, by merely turning a cock. This plan of filtering seems, in fact, to remove all the objections that can be possibly urged against the use of the house sewage; and in the case of gardens, both for the amateur and the poor cottager, I feel convinced that by such a mode as this, many of the difficulties of incessant cropping, and little-varied exhausting rotations, may be successfully met. The waste of fertilizing matters in such sewage is, in fact, so much larger than is commonly supposed, (a loss by the ordinary mode of constructing these tanks disguised in every possible way,) that I feel assured it only needs the adoption of some such a mode as that which I have described, of rendering its use no longer distasteful to the occupants of the house, to ensure its almost universal employment. The amount of sewage is much larger than is commonly understood; and in dry weather, when the demands of the gardener are larger, it is, we find, very easy to increase its bulk, in case of need, by pumping water into the tanks through the ordinary means. It may be useful to those who are about making similar attempts for me to add, that the $\frac{3}{4}$ -inch iron pipes (gas service pipe) cost 1s. per yard, and the iron cocks of the same bore, 2s. 6d.*

RASPBERRIES.

It will be interesting and useful to many, to know a simple and certain mode of producing an abundant crop of this very useful fruit in a small space.

There are many varieties of various properties of this fruit, but, after practically cultivating several within these thirty years, I now confine myself to three of the most prolific—the Yellow Beehive, the True Fastolf, and the Autumn-bearing; the latter of which I should confine myself to, were I only to cultivate one variety, as it is the most profuse bearer when managed as follows:—Select a corner, or, which is better, an outside of a quarter, next the walk or alley, to be planted as a boundary; trench the ground well, and work in a good portion of rotten vegetable refuse—leaves, or even old tan, they are fond of. Incorporate all well together by frequent forking through the winter; procure suckers, which may be safely planted any time previous to the middle of March, to produce a good crop the same season; plant two feet from plant to plant, and cut down close to the ground the first week in April, and mulch with half-decayed leaves or vegetable refuse. The suckers, as soon as three inches high, should be hoed or thinned out to at least six inches apart; and a third of them should have their tops picked out when about fifteen or eighteen inches high, another third of them when a foot higher, and the others allowed to grow their natural length. This will insure an abundant crop from the earth's surface to the topmost branches, in regular succession, from the end of July to the middle of November, and when the winters are favourable, even longer. A most essential point is, as soon as they begin to swell their fruit, to apply occasionally good soakings of liquid manure, brewed from the excrements of horses, cows, pigs, sheep, deer, or poultry. Apply, also, a good portion of chimney-soot and some salt—which treatment we find swells the fruit not only to an immense size, but greatly improves the flavour.

* I purchased mine of Messrs. Bailey, Pegg, and Co., Bankside, London.

Fifty plants thus managed will produce enough to supply a large family. The raspberry-canoe should never be allowed to stand upon the same ground more than two years. A succession should be planted every season, and treated as above to maintain an abundance of fine fruit. If they are tardy in producing suckers, scrape off the mulch with a draw-hoe, by which you will cut and bruise some of the surface-roots, and thus induce buds, and consequently suckers. The mulch should be at once returned again.

J. BARNES, *Bicton Gardens.*

POTATO-PLANTING IN IRELAND.

The gratifying intelligence has reached us that, in some parts of Ireland where autumn-planting has been introduced, it has been signally successful. The following is an extract from a letter we have received from Guy P. L'Estrange, Esq., Shantonagh, near Castle Blayney:

"Last year I had a short correspondence with you relating to autumn planting of potatoes. I tried it, and although it was November before my crop was put in, it succeeded well, and there were none diseased: all those planted in the spring have suffered more or less. I am now desirous of planting my general crop in this month, and should be very happy to learn if you still adhere to your opinion upon this subject.

"I beg also to enclose you a short account of an experiment made by Sir William Betham (Vice-President of the Royal Society,) at Dublin, by planting the offsets, from which a fine crop has resulted, these I have myself seen.

"With respect to the general crop in Ireland, I fear they are now going very fast indeed; and I think, by Christmas we shall have a great scarcity of potatoes: the late planted never came to maturity."

The following is the extract from Sir W. Betham's letter, referred to by Mr. L'Estrange:

"Royal Society, Dublin, 8th Sept., 1848.

"I called the attention of the cultivators of potatoes, early in the year, to an experiment I practised last year (1847;) viz., that of taking off all the stems which arose from a cut of the potato except one, and transplanting them in drills, two feet apart, and one foot in the drill between each plant. The transplanted stems produced me an excellent produce of good sound potatoes. This spring I adopted the same practice on a larger scale with perfect success, and am now digging a good crop from the transplanted drills, of red apples and cups, and have not discovered a single instance of disease in either kind; the produce of both are clean and perfectly sound. The most important result, however, was with the ridges from which I took the offsets, leaving but one stalk to each plant; the produce has been remarkably abundant, and all large and marketable potatoes. My ridges were four feet six inches wide. I weighed the produce of a perch of twenty-one feet, and found eight stone of large sound potatoes!

"Being in London in March last, I saw on the table of a friend, where I dined, some very fine mealy potatoes. I procured twelve large tubers, which I brought over in my carpet bag. I cut them in the usual manner, and planted them in drills, on a plot twenty-one feet by twelve. I dug the produce the day before yesterday, and to my astonishment I weighed them—ten stone of excellent sound potatoes without any small ones! They were treated in the same manner as the others; viz., only one stalk left to each plant, and the offsets transplanted."

COTTAGE AND ALLOTMENT GARDENING.

(No. 1.)

BY THE EDITOR.



WELL-ORDERED garden is a real friend; always ready to afford reasonable aid; yet no cottagers, who are wise, will ever think of getting a living out of their gardens. They who might be contented to live upon nothing but potatoes, cabbages, and similar food, would soon be reduced to the present condition of the Irish peasantry: dragging on at all times a degraded existence, never doing more than just escaping from actual want; and when a failure of any particular garden crops occurred, starving or living upon charity. No right-minded English cottager will desire such a state of things as this; but it is a totally different matter for him to have a garden that will afford profitable occupation for his own leisure hours and for the leisure hours of his wife and family. Such a garden is one of the cottager's best helps—it does not fill his pot every day, but every day it will yield something to put into the pot—something which will make its contents more nourishing and more agreeable. No cottager should desire to have more than an eighth of an acre for his garden. A slip of ground, twenty yards wide and thirty-one yards long, will be about that size. If it be much larger, no cottager can keep it well manured, well dug, and well hoed,—and if all this be not done, and well done too, he had better have a still smaller piece; for a less piece thoroughly well cultivated will yield him much more than a piece of ground twice the size badly cultivated. Besides, who with a spark of proper pride about him would have a weedy, ill-cultivated garden?—such a garden bespeaks a man who does not care about his home, or its comforts; and from some years' experience we can say, without any reservation, that we never knew an unworthy cottager have a well-tended garden, nor a worthy cottager have one badly tended. Be assured, the man "is not worth salt to his porridge," who does not care whether a nettle or a rose-tree grows before his cottage window; nor whether a vine or a nettle spreads around its walls. It has been so from times long before the wisest of men wrote; for he says, "I went by the field of the slothful, and by the vineyard of the man void of understanding; and lo! it was all grown over with thorns, and nettles had covered the face thereof, and the stone wall thereof was broken down," Prov. xxiv. 30.

Now what ought a garden occupying one-eighth of an acre to yield? Why we will tell you not only what it ought to yield, but what it has been known in many instances to yield. In Essex and Hampshire we have known it to produce year after year thirty bushels of potatoes, five bushels of parsnips, five bushels of carrots, five bushels of beet-root, five bushels of onions, three hundred cabbages, besides sprouts, with many boilings of peas and beans, as well as radishes and savory herbs.

Before giving any directions for the cultivation of the particular crops, we will make a few observations upon some of the operations applicable and beneficial to them all.

DRAINING.—We put this first, because it is least attended to, yet scarcely a garden exists in all England that would not be very greatly benefited by being drained. We know a cottage-garden that no manuring would make productive—it was overrun with

sorrel, mercury, and other weeds in the summer, and in winter the crops were always frost-bitten. We told the tenant it would be all cured by draining; and though he laughed at us, yet, as his landlord said he would take twenty shillings from the next rent payable at Lady-day, if he did in the meantime drain the garden, the cottager did drain it—he drained it well, too; saved a fifth of his twelvemonth's rent, and his garden has been productive ever since.

There was a ditch down one side of his garden, so he cut a drain, one foot wide and four feet deep, across his garden. This drain sloped down into the ditch; and falling into this first, or main drain, he cut other drains, nine inches wide and three and a half feet deep, and ten yards apart: he filled the bottom eighteen inches of each of the drains, with flint stones, put a little haulm over the top of these, and then returned the earth he had first dug out. Water from this drain into the ditch never ceased running, even in summer. If any cottager wants a further proof that draining will improve his garden, let him be satisfied with this other fact: Lord Hatherton had, at Teddesley Hay, in Staffordshire, a great many acres of land, which he let at 12s. per acre; he drained those acres thoroughly, and they now let for fully 31s. per acre.

(To be continued.)

HINTS FROM OUR CONTEMPORARIES.

CROCUSES IN ROOMS are usually kept too warm at first. The best treatment is to plant them not later than October, in earth or moss, only slightly damped, and to keep them in the window of a room where there is no fire. In January they may be kept a little warmer, but in all places give them as much air and light as possible.—*Gardeners' Chronicle.*

NUMBER OF SEEDS IN A GIVEN QUANTITY, AND THE SPACE THEY WILL SOW.

1oz. of Parsley-seed has in it 16,200 seeds; and a quarter of it is enough for sowing a drill 60 yards long.

1oz. of Salmon Radish-seed contains 1,950 seeds, and will sow, broadcast, a bed containing 10 square yards.

1oz. of Onion-seed contains 7,600 seeds, and, sown broadcast, will suffice for 14 square yards of ground, but, if sown in drills, will be enough for 20 drills—each 4 yards long, or for about 24 square yards of ground.

1 pint of dun-coloured Dwarf Kidney-beans contains 750 seeds, which are enough to sow four rows—each 7 yards long.

1 pint of Scarlet Runners contains 264 seeds, and is enough for 4 rows—each 9 yards long.

1 pint of Broad Windsor Beans has 170 seeds, and is sufficient for 7 rows—each 4 yards long.

1 pint of Knight's Dwarf Marrow Peas contains 1720 seeds. 1 pint of Early Warwick Peas, 2160.

1 pint of Prussian Blue Peas, 1860. 1 pint of Scimitar Peas, 1299; and any one of these pints will sow 8 rows—each 4 yards long, as the larger peas require to be sown wider apart in the rows than the smaller-seeded peas.

1oz. of Carrot-seed, or Parsnip-seed, sown broadcast, will be sufficient for a bed containing 16 square yards—and for one containing 28 square yards, if sown in drills.

1oz. of any kind of Cabbage or Broccoli-seed will be enough for a bed containing 9 square yards, if sown broadcast, or for 16 square yards in drills.

HARDY PLANTS LATELY MADE KNOWN AND WORTH CULTIVATING.

CRIMSON DOUBLE-BLOSSOMED PEACH (*Amygdalus Persica sanguinea plena*).—This highly ornamental shrub was brought from China by Mr. Fortune. The flowers being double, it of course does not bear fruit. It is propagated by grafting or budding upon a plum, or any other stock upon which the common peach will succeed.—*Horticultural Society's Journal*, iii. 246.

CALIFORNIAN ZAUSCHNERIA (*Zauschneria Californica*).—This rival of the Fuchsia is a bushy perennial sent to England from Santa Cruz in California by Mr. Hartweg. It is about three feet high, and bears numerous bright scarlet flowers. It requires a light garden soil, and will probably do well upon rock-work. It may be propagated either from seed or cuttings. Sown in May, the seedlings will flower in September. The flowering season of established plants is from June to October.—*Hort. Soc. Journal*, iii. 241.

PEACHES.—*Gain de Montreuil* and *Reine des Vergers*; both late, and cling-stones. *Pucelle de Malines*, is very rich, juicy, and melting; it is not a cling-stone. Ripens early in September on a south wall.

PEARS.—*Arbre courbe*: melting; ripe in October; suits a west wall. *Beurré Bretonneau*: melting, rich, oval; March and April. *Beurré d'Esperen*: large, melting, perfumed; February to May. *Beurré Giffard*: melting; east or west wall, or pyramidal; July. *Bon*

Gustave Calebasse d'Ete: half-melting; not productive as a pyramidal; August. *Calebasse d'Hiver*: February and March; otherwise like preceding. *Casante de Mars*: crisp; either as a pyramid or on a south wall; March and April; does not do on a quince stock. *Catinka*: melting, but soon spoils; as a pyramidal, or on wall; November and December. *Duc de Nemours*: melting. *Orpheline d'Enghien*: melting; November to January; as a pyramidal, or on a south wall. *Passé Tardive*: crisp, keeps twelve months; on a south wall. *Poire favorite*: half-melting, slightly perfumed. *Reine des poires*: half-melting; pyramidal, or on a west wall; November to January. The old *Reine des poires* ripened earlier. *Triomphe de Jodoigne*: melting and perfumed; November and December. *Fauquelin*: juicy, rich, sub-acid, and perfumed; November to March.

STRAWBERRIES.—*Angélique Jamin*: large, sub-acid, raised from Keen's seedling. *Comte de Paris*: middle-sized, scarlet. *Princess Royale*: vinous, firm-fleshed.

CUCUMBER.—*Prize-fighter*: good bearer. Length, 16 inches.

APPLE.—*Anglesea Pippin*: very like a peach in appearance. Flavour excellent. Very early.

BROCOLI.—*Wilcox* closely resembles the Walcheren.

CELERY.—*Seymour's White Solid* and *Red Solid*: are large, and, being solid-stalked, not liable to that pipiness which celery usually acquires by age. It has been known to stand two years without running to seed.

[C. W. asks whether we shall have a corner dedicated to "Poetry of the Garden;"—our answer is, that although we cannot promise a constant devotion of space for this purpose, we shall always be unwilling to reject such verses as those which he has sent to us.]

I SEE it now, through bygone years,
As plainly as of yore!—
Though grief and age have worn life's page
And stain'd its traces o'er,
That fairy home of boyhood's time,
When the world was pure and gay,
Comes sweeping back o'er memory's track
As fresh as yesterday.

I see again the well-known scene—
I tread the path anew
Where lily, rose, and eglantine,
Commingling fragrance threw:
You cannot say I'm weak and old,
Or that my locks are gray,—
I'm hale and young—I stand among
The scenes of yesterday!

Thou reverend, old, and hallow'd oak,
I hail thee once again!
The stately wave thy branches gave
Is solemn now as then,
When underneath thy charmed shade
I mused the hours away,
Nor thought too bright the dreams I made
In sunny yesterday.

Thou creeping vine, that lovest to twine
Around the cottage door,
And weave thy slender, netty arms
My chamber lattice o'er,—
I've clapp'd my little hands for glee,
And thought no vine so gay
As the vine that cluster'd fruits for me
In childhood's yesterday!

Ye tinted flow'rs, of varied hue,
That fringe the walks along—
Ye modest plants that hide from view
Amidst the blooming throng—
I'm bounding down your garden slope
With my long-forgot "Hurra!"—
I'm shouting loud the song of Hope
You taught me yesterday!

Alas! alas! that boyish song,
For me, is bush'd and still;
The blood that danced so light along
Creeps slowly now and chill;
My sight grows dim—my limbs grow old—
The vision fades away:
Though bright it seem, 'tis but the dream
Of bygone yesterday!

CHARLES WILTON.

TO CORRESPONDENTS.

ANTHONY.—We consider not only Pelargoniums and other window-flowers subjects clearly entitled to consideration in our columns, but also greenhouse cultivation altogether.

H. J. B.—We will endeavour to give you the information you ask for, relative to Thomas Hill, next week.

NEMO will find the best mode of preserving his seedling cauliflowers from the attacks of slugs, is by sprinkling over the surface of the soil enough slacked lime to make it quite white. It will remain caustic for three or four days, if no rain occurs. At the end of three days give another sprinkling, and continue to repeat it until the seedlings are grown out of harm's way.

So numerous are the suggestions kindly made by our CLERICAL FRIENDS, that we must rest contented to day with giving a general assurance that those suggestions shall receive our best consideration.

WEEKLY CALENDAR.

M D	W D	OCTOBER 12—18, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
12	Th.	Birch leaves fall.	Wavy Fleabane.	21	12	rises	Full	13 32	286
13	F	Trans. King Edward Confessor.	Smooth Helenium.	23	10	6 a 1	16	13 46	287
14	S	Beech leaves fall. [leaves fall.	Indian Fleabane.	25	7	6 38	17	14 0	288
15	SUN	17 SUNDAY APT. TRINITY. Cherry	Sweet Sultan.	26	5	7 21	18	14 13	289
16	M	Oak leaves fall.	Milfoil.	28	3	8 11	19	14 26	290
17	To	Etheldreda.	Ten-petal'd Sunfl.	30	1	9 7	20	14 38	291
18	W	St. LUKE.	Flocculose Agaric.	32	iv	10 9	21	14 49	292

PHENOMENA OF THE SEASON—13th. Elder leaves begin to fall.—14th. Such wild flowers as the heart's-ease, white beha, black non-such, hawkweed, bugloss, gentian, honeysuckle, and small stitchwort, are yet blooming in uncultivated places.—17th. Hazel leaves

begin to fall. The lime has lost all its leaves. This is the time of apple-harvest in Herefordshire and the other cider-counties. It is also the vintage-time or grape-harvest of France, Italy, and Germany.

INSECTS.—Just after sunset at this period, and hovering round flowers, may be seen the Gamma



	1841.	1842.	1843.	1844.	1845.	1846.	1847.
12	Showery.	Cloudy.	Showery.	Fine.	Cloudy.	Hazy.	Fine.
13	Cloudy.	Fine.	Fine.	Cloudy.	Fine.	Showery.	Hazy.
14	Cloudy.	Hazy.	Fine.	Rain.	Fine.	Rain.	Hazy.
15	Rain.	Hazy.	Cloudy.	Rain.	Fine.	Rain.	Showery.
16	Rain.	Fine.	Fine.	Showery.	Fine.	Fine.	Fine.
17	Cloudy.	Fine.	Showery.	Fine.	Cloudy.	Cloudy.	Fine.
18	Showery.	Showery.	Fine.	Fine.	Cloudy.	Rain.	Showery

Moth (*Noctua gamma*, called also *Plusia gamma* by some naturalists). It is called the Gamma Moth, because about the middle of the upper wings, but towards their inner

border, there is a silvery shining mark, like the Greek letter gamma (γ).* This enables the moth to be easily known; but we will give a further description of it, that the gardener may be certain that in every one he destroys he has removed an enemy. The outspread wings are about an inch across: the upper ones gray-coloured, marbled with brown, and shining; the under wings pale ash, with a brown edge; the head and throat brownish, edged with gray lines; the belly, or abdomen, yellowish gray, tufted with brown hairs. At this season they deposit their eggs, and it would be an aid to the warfare against them to ascertain what plants they select for this purpose. The eggs hatch at various times from May to September, but chiefly during July. The caterpillars proceeding from them are green, beset with greenish single hairs; head brownish green; on the back and sides three or four yellowish white lines; feet twelve in number, and marked with a yellow stripe. These caterpillars commit great ravages, especially in the south of England, upon our peas and other garden vegetables; the best remedy for which is hand picking. It is quite possible for the progeny of this moth to become quite a plague, as in one season a single pair can produce 80,000 eggs, and in 1735 their caterpillars actually ravaged France. On the roads they might everywhere be seen crossing in all directions. They devoured all the leaves of the peas and pot-herbs; and a vulgar prejudice being disseminated, that they were poisonous, all garden herbs were avoided at Paris for some weeks.

* The shape of this mark has acquired to this insect another name,—the Y-Moth.

GENERAL REMARKS.

OCTOBER is the Gardener's harvest or storing month; his apples, pears, carrots, parsnips, and many of his seeds, all have to be gathered in during some portion of its days. Now, upon the gardener being successful in preserving those fruits, roots, and seeds, depends not only the future supply of his table, but much of his profit. When we speak of "profit," we do not confine the meaning of that word to the money for which he might sell that produce of his garden, if he be a retail gardener or a cottager selling his surplus,—but we extend it to the produce of the Amateur's garden. Profit is the absolute reverse of loss; and, therefore, as it would be a loss to the amateur to have his fruits and roots prematurely decay, and his seed refuse to vegetate,—so, consequently, to have the two first long preserved, and his seed fertile, is as much to his advantage or profit.

Yet, though all are so much interested in the preservation of such produce, there is more carelessness and ignorance shown in this department of gardening than in any other. Let us, if we can, arouse a little more attention to this subject, and show how advantageously common sense may be exercised upon it.

We will confine our observations this week to the storing of roots. and begin with the fundamental question—In storing them, what should be our great aim and object? The answer is obvious: to keep them, as long as possible, from decaying and from growing. Everything, therefore, that promotes either decay or growth ought to be excluded. Now, it so happens that the two chief circumstances that promote the one equally promote the other; viz., warmth and moisture. Roots should be so stored, therefore, as to be kept cool and dry; but especially cool—for they contain within themselves, at all times, sufficient moisture to enable them to grow, if they are exposed to a degree of warmth favourable to growth. We remember, as an illustration of this, that we were consulted as to the cause of onions growing and becoming useless year after year, though they were most carefully dried and hung up in ropes. The cause was at once detected when we were told that the ropes were hung up in the kitchen, where, even in winter, the cook's fire kept the temperature up to the heat of summer. Next year, the ropes were hung up in the scullery, where no fire appeared all the

winter, and the onions remained without growing even until late in the following spring.

Onions, though bulbs, are affected by warmth and moisture the same as carrots; and to keep these last cool and dry, yet without drying internally so as to wither and be unfit for cooking, the best mode is to put them in a dry cellar, or in an out-house on the north side of the house, in alternate layers with dry sand. They may be thus stacked upon the floor in one corner of the cellar or out-house, or, which is more tidy and more easily managed, in old casks or boxes. A layer of this dry sand being first made about an inch thick, then a layer of carrots, and then another layer of sand, so thick as to be an inch deep, over the carrots. This being repeated until the whole are stored away, the top should be covered about six inches deep with sand.

Another important consideration is the preparation of the carrots previously to thus storing them away; and the first thing is to trim off all the small fibrous roots, and to rub off all the soil which may adhere to the carrots; for the fibres are very liable to decay,

and the soil, much more than sand, promotes that decay. The tops of the carrots must be cut off, and not only the leaves must be so removed, but also a slice of the root or carrot itself, sufficiently thick to remove the whole of the ring or collar from whence the leaves would spring if the root began to grow. This is a most effectual check to such growth, and the carrots being buried, do not wither, owing to evaporation from the wound, nor do they at all decay—for the surface of the wound dries over.

We have tried dry earth, coal ashes, sawdust, tan, and malt-dust, as storing stuff for carrots and similar roots; but none of them answer so perfectly as dry pit-sand. Sea-sand will not do, because the salt in it gathers moisture and promotes decay. Parsnips and beets must be treated, when stored, exactly as we have given directions for carrots. All of them should be drawn from the ground by the aid of a fork, and during dry weather; and they should be dried for a day or two, by exposure to the air, before they are stored away. Those bruised or decayed should not be stored with those which are sound. EDITOR.

THE WEEK'S FRUIT-GARDENING.

TRAINED TREES.—Before addressing ourselves to the cottager, to whom, shortly, we shall have some advice to offer, we will endeavour to furnish a few seasonable hints to the amateur as to the planting of fruit-trees on walls, or as trained espaliers; observing, however, once for all, that although we more particularly address some of our observations to the amateur, and others to the cottager, yet that the practical directions and information those observations contain are applicable alike to the gardening of both. The first consideration before planting is the soil; for unless this is of a wholesome character, clever selections of varieties will be of little avail. There are two extremes which should be at all times avoided in preparing the staple for fruit-trees: the one, when soils and subsoils are too retentive of moisture; the other, when the staple of the soil is so sandy and weak, that the trees become exposed to sudden droughts. In the former case the trees become choked with mosses and lichens; the points die prematurely, and the fruit is starved and stunted. We need scarcely urge that a premature breaking up of the constitution of the tree is the sure result. In the case of sandy, porous, and, of course, hungry soils, the young trees are many years old before they attain any profitable size. Their growth is performed by instalments, as it were; and whether they make any at all, depends on the character of the months of April and May; for unless these be wet, the trees have little chance. The trees too speedily become hide-bound; and every summer, drought subjects the fruit to the chance of cracking, and of eating "dry."

Those about to plant, therefore, should beware of these extremes, and endeavour to correct the soil's texture. It is well known that clays may be made more open and fertile by means of sand; and sandy soils may be made more retentive of moisture by mixing with them clays or marl. These various soils, however, not being always at hand, expense becomes a consideration.

As correctors of sandy and hungry soils, we would suggest the following; all of which, or any of them singly, will render such soils more fertile. The order in which they stand will indicate their beneficial quality. 1st. Marl; 2nd. Strong soil from headlands of fields; 3rd. Furrowings from low meadows; 4th. Clay; 5th. Ditchings from adhesive soils; 6th. Pond mud; 7th. Spare turf and weeds; 8th. Old and unctuous peat.

As correctors of adhesive or clayey soils, we suggest also in a similar order:—1st. Sand of any kind; 2nd. Ordinary sandy soil; 3rd. Old mortar, lime-rubbish, etc.; 4th. Cinder ashes, fine; 5th. Ditchings from loose soils; 6th. Loose turf and weeds; 7th. Ordinary vegetable matter.

There need be little trouble or expense attend mixing composts; any, or all of them successively, may be scattered at intervals through the ordinary soil in the process of covering the roots at planting time. This is the most inexpensive and straightforward plan for ordinary cases; but where a little expense is not heeded, good sound loamy turf is the best material of all others for fruit-trees in general: and we would advise the amateur to introduce portions of it about the roots of choice kinds of fruit-trees.

THE COTTAGER'S FRUIT-GARDEN.—The time approaches in which cottagers must begin to make preparations for the produce of another year.

PRUNING.—As a general policy, we would advise above all things the early pruning of all fruit-trees and shrubs. We suggest this for several strong reasons. In the first place, October and November find the cottager most at leisure to prosecute improvements. His summer cultivation is over; his store roots are all secured, or soon will be; and there is still a chance of working the soil, or of putting it under a winter's fallow.

By getting the pruning done immediately the leaves are fallen, or even before they are all down, the cottager will find a little leisure occasionally to deeply dig or trench and ridge some of his spare soil; and this done,

to be at liberty for the ordinary spring cropping. Spring, which brings a host of business peculiarly its own, should by no means be fettered by arrears of work which might have been cleared off during the past winter.

APPLE AND PEAR.—In pruning ordinary espalier apple or pear-trees, care must be taken to preserve and continue leading shoots at proper distances, and in proper situations. Apple and pear leaders may be about a foot apart, but care should be taken, in the earlier training, that very irregular and overhanging shoots are pruned away, or they will prevent any successful cropping beneath the trees—which we shall, in due time, prove can be accomplished without sacrifice, by adhering to a few maxims.

The interior of the bush or tree must also be kept rather open; at least, the boughs should, from the first planting, be kept rather thinner here than at the outside of the tree. After selecting, and looking well to these leaders, the next point is thinning out. In doing this, all cross-shoots must be removed—at least where crowded, and much of the past season growth cut away where becoming confused. In doing these things, however, the cottager need not proceed to so great an extreme as the amateur, who is aiming as much at symmetry and agreeable forms as produce. It must ever be borne in mind, that many of our apples and pears bear on the young wood; and such, therefore, must be pruned with a light hand.

After thinning out the shoots, a little shortening of them must be attended to—at least whilst the tree is young, and in the course of formation. Nevertheless, it must be remembered what is the object in view. Shortening contributes nothing to the health of the tree—nothing to its fruit-bearing properties. It is, in fact, an adjunct of a dwarfing system, being an attempt to limit the ultimate size of trees, in order to prevent them, in gardens, from attaining an orchard size and character, which would, in time, by overshadowing the ground, totally prevent success with any course of cropping. Where trees grow tolerably strong, nearly one-half in length of the young leaders may be pruned away in the earlier stages; this course,

however, should be combined with a slight root-pruning.

In pruning bush fruit, it is necessary to thin more liberally; however, it is proper to divide them into two classes, viz., those which bear chiefly on the annual shoots, and those which bear chiefly on spurs. In the former class, or bearers on the one-year-old shoots, we may place the

GOOSEBERRY, BLACK CURRANT, AND RASPBERRY:

In the class of old wood, or bearers on spurs, the

RED CURRANT, AND WHITE CURRANT.

In the first section, it is merely requisite to remove so much of the young spray as that the remaining shoots may be on an average about four inches apart.

In spur-pruning, that is to say, in pruning the red and white currant, leaders must be trained in a similar way as the young apple and pear trees; these will be permanent, and they will produce an annual crop of spray from their sides, which must be annually cut back, to within half an inch of its base. In the course of their growth, however, a chance of additional leaders will occasionally occur. Such, if well placed, may be allowed to remain, and receive in due course the same treatment as those from which they sprang.

HEDGE-ROW FRUIT-TREES.—We would direct the attention of the cottager to the great profit which is frequently derived in many parts of the kingdom from fruit-trees in the hedge-rows. We know of several examples within ten miles of us where the cottager very frequently pays his rent from the fruit-trees in his hedges. The cases we allude to are principally damsons; many, however, grow the more compact kinds of apples, and without any material injury to the garden crops.

We shall, in due course, offer advice how to carry out a system of the kind; and endeavour to point out how it can be managed without injury to the hedge or adjacent crops. In the meantime we advise all who are making new hedges, to introduce some trees with good stems. Where the trees are to be inserted, it will be well to introduce some better soil. Any turfy matter will be useful.

THE WEEK'S FLOWER-GARDENING.

As the seasons roll round, every week brings its care and forethought to the prudent lover of flowers. Even at this comparatively dull season of the year the duties of the flower-gardener are almost as important as at any time. Autumn reminds one forcibly of the end of a well-spent life; we can not only look back with complacency and thankfulness, but forward with hope. So in gardening, we can remember with pleasure the beauties our skill and industry have brought to perfection: we can prepare a store of objects, take care of them during the trying season of winter, and then look confidently forward to a rich and blooming reward through the months of the future spring and summer. Many are the objects that now demand our care.

PERENNIALS.—This week we shall devote our attention to perennials, or flowering plants that last several years. They are a valuable class, inasmuch as they require but little care, and supply us with flowers all the year, or at least all the floral year. If the garden is but poorly furnished with perennials, they may be procured at a moderate charge of any respectable general nurseryman. This is a good time

to purchase them. The beautiful family of *Phloxes* stand pre-eminent in this class, producing their lovely blossoms nine months in the year. The routine of culture for this genus will suit nearly all hardy perennials. They are readily increased by division of the roots; or where any particular species is scarce, cuttings of the half-ripened flower-stems will strike in a cold frame in pots or under hand-glasses, with or without a little bottom heat;* but where we can command the heat, the plants are more quickly made, and consequently the use of bottom heat is preferable. As soon as the cuttings are struck, they may be potted off into pots, three inches diameter, in rich light soil, and kept through the winter in a cold frame, covered during severe frost with mats. As soon as the weather becomes more mild, the plants may be planted out into their places, and will bloom partially the first year, and strongly and finely the second. The large and almost equally beautiful genus, *Penstemon*, does not divide so readily as most others, and therefore must be propagated by cuttings, which may be put in about the month of May, in order to have strong

* *Bottom-heat*—heat applied to the roots, as by burying to its rim the pot in a hot-bed.

plants early in autumn. We shall return to this interesting subject again shortly

AMATEUR'S FLOWER-GARDEN.—Having now arranged in good order your soils and tools, the next thing to attend to is to examine your stock of flower-roots, and if you do not possess a sufficient variety, now is a good time to procure the necessary addition. Read the foregoing paragraph—it will be useful to you. If your means are limited, purchase the cheapest and showiest kinds, and increase them freely.

BULBS.—Now is especially the season to procure bulbs—such as the crocus, snowdrop, gladiolus, lilies, tulips, &c. All these, whether you have them by you or purchase them, should be examined, and the sound ones preserved and the bad ones thrown away. As soon as the frosts destroy the flowers of the season, the ground for bulbs and perennials should be prepared by an addition of compost or manure, to receive the bulbs: of which more anon.

DAHLIAS will now begin to fail, and when the tops are destroyed by frost, must be cut down and the roots immediately taken up to prevent too great an effusion of sap. Many methods of storing dahlias have been recommended: we think the following the best:—Take them up on a dry day, turn the roots upwards so that the sap or moisture may drain away, then in the evening place them in a dry place in the same position, and when they are perfectly dry cover them with some short dry hay. Once a month examine them, and remove all decaying stems, adding fresh hay if the old has become damp or mouldy. The place where Dahlia roots are kept should be impervious to frost. In this way we have kept dahlias very well. Where there is space and time it is a good plan to have a store of young plants in pots, a few of each good kind. These can be put away in the pots, and are almost all sure to grow and make strong plants in the spring.

COTTAGER'S FLOWER-GARDEN.—The cottager will at this season find some rather important things to attend to. He must think how to make his flower-beds gay next season. We shall therefore give him some instructions in propagating the following articles:—roses, honeysuckles, sweetbriars, jessamines, and cistus. All these, except the sweetbriar, may be propagated by cuttings in the open ground.

CUTTINGS.—Choose a shady border, next a low wall or hedge,—the latter to be close clipped with the garden-shears. Let the soil be well dug and chopped small, and the surface raked very fine; then pour some water upon it, and let it stand a day, to become moderately dry again. Let the cuttings then be prepared, by cutting them with a sharp knife into lengths about six inches long; with your knife take off the leaves, all except the top ones. Cut the lower end of each cutting right across, close to the lowest bud. Expose the cuttings as little as possible to the sun and air: they may be preserved fresh by having a little damp moss or hay at hand to cover them with as soon as they are prepared. Prepare only one kind at a time. As soon as a sufficient number are ready, open a trench with a small spade at the end of the border intended for the cuttings. Chop the side of the trench furthest from you straight down just a sufficient depth to leave the topmost bud and leaf out of the soil; then place the cuttings against this upright bank about three inches apart. When the row is filled with cuttings, with your spade put the soil against the cuttings, and with your foot tread it firmly to the cuttings. Take great care that the soil is quite close and firm around each cutting. Then fill up level with the top of the row of cuttings another

portion of soil, until there is a bank of earth six inches distant from the first row. Chop down the outermost edge of the soil, so as to leave another upright bank to set the second row of cuttings against, and so proceed from row to row, till you have filled the space set apart for this purpose. Most of the kinds of the above shrubs may be increased this way, excepting sweetbriars; these may be raised by the seeds contained by the hips; but this subject we will reserve till next week.

FLORISTS' FLOWERS.

At this season of the year the objects of the florist's care require constant watching to keep the plants healthy. Every thing about them ought to be clean, sweet, and in perfect order. The success next year depends greatly upon the minute care and constant unwearying attention bestowed during the changeable later months of the year. All plants under glass frames or cold pits must have air every day by propping up the lights in wet weather; and the lights ought to be drawn off on all fine days, and the plants fully exposed to the sun.

FRAMES.—We have spoken of frames and cold pits. Now the frames and pits necessary for florists' flowers depend entirely upon what stock is kept. A propagating pit is a necessary appendage, and a pit or a narrow span roofed house, with a walk down the centre, to grow roses in pots, is also a great acquisition. The best mode of heating both is by the tank system, which we need not describe, as that method is now generally known. A number of hand-lights for striking cuttings of pansies, roses, and pinks, are also indispensable. We mentioned last week "Soils for Amateurs." Now, if the amateur must pay attention to providing the necessary soils, compost manures, &c., how much more necessary is it for the florist? He must provide this prepared food for his lovely family in large quantities of the best qualities, and take care that it is rightly mixed, to suit their several constitutions. Like the amateur, he must have loam, peat, or heath mould, leaf mould, manure, and sand.

LOAM.—The word loam may be defined as the pure soil of the surface of the earth, containing no excess of sand, gravel, iron, or vegetable matter; the colour a brownish yellow, porous or open, and moderately light. The best is procured from upland pastures, that have been under grass for a number of years. About four inches of the surface is the best. Sometimes very good loam may be found near the sides of rivers, but this is too often mixed with the deposits from the water, and is frequently of too close a texture. A florist, however, will soon perceive whether the loam he can easily come at is fit for his purpose. If there is the least appearance of much oxide of iron in it, he must avoid it as he would the plague.* Having selected a loam of good quality, let it be carted home, and have an open situation for it, taking care to have a rather long and shallow heap, so that by turning it over four or five times a year, every part of it may in its turn be exposed to the full influence of the sun and air.

PEAT, OR HEATH MOULD.—This may be known at once from loam by its colour, being black and full of fine shining particles of pure white sand. The best is to be had from situations where the common heath grows best. Two or three inches of the upper surface is usually the best for floral purposes. The quantity

* Oxide of Iron may be popularly described as the red rust of iron. It is really iron combined with oxygen, one of the chief constituents of the air we breathe.

required is about one-third of the loam directed to be provided. This should also be kept in a situation exposed to the air and sun, and occasionally turned over, to bring it into a friable condition, ready for mixing.

LEAF, or VEGETABLE MOULD.—This very desirable and almost indispensable ingredient, is, in many places, more difficult to obtain than either loam or peat. In country places, leaves can be collected either in woods or even by the sides of lanes under trees in abundance. And as leaf mould is such a treasure to the florist, no pains ought to be spared during the fall of the leaves to collect as many as possible. It is almost the best of all manures for the garden generally, but for plants in pots it is invaluable. It requires nearly two years to reduce it, by frequently turning over, so as to make it fit for the florist's purposes.

MANURES.—A volume might be written upon the subject now before us. For floral purposes, however, two kinds are sufficient—rotten stable-dung and cow-dung. These two, properly prepared, in our opinion will grow every kind of florist's flower to great perfection. We are aware some writers recommend night-soil, bullock's blood, pigeon's dung—nay, even sugar-baker's scum! These are all however too hot and

stimulating for the delicate plants now under consideration.

STABLE-DUNG.—The best preparation of this is by making it into hot-beds, which in a garden are always useful. In twelve months it will be rotten enough to mix with other materials to form the proper compost for the plants for which it is suitable.

COW-DUNG requires a rather longer time to make it fit for use, as it does not ferment so easily as horse-dung. The best and readiest way to reduce it into a decayed state is by mixing it with loam: a layer of cow-dung, three or four inches thick, and a layer of loam the same thickness; and so on till the heap is about two feet thick. Allow this heap to remain quiet for two or three months, and then turn it over, repeating this operation about every three months. In eighteen months it will be in a fine state for either potting or to enrich the beds of flowers that require a cool, rich compost.

SAND is a necessary article to open the composts. The best is the pure pit-sand, known by the name of "silver-sand;" but for most common purposes, river-sand answers very well. It requires, however, to be sifted through a fine sieve, to remove small stones and other extraneous matters. T. APPELBY.

THE WEEK'S KITCHEN-GARDENING.

ANGELICA.—Sow a small quantity, if not done last month: a quarter of an ounce of seed will be more than enough. Sow in drills a foot apart, and that quantity of seed will be sufficient for a bed five feet long by three feet wide. Any common soil in an open plot will do for the seed-bed. When the seedlings are about six inches high, let them be transplanted where they are to remain for use. The soil they then prefer is a moist one, such as the side of a ditch having a constant supply of water; but they will grow in almost any soil.

Angelica is a biennial, that is, it is a plant which is raised from seed one year, and ripens its seed and dies the next year. Its stems may be blanched and eaten like celery; its young green shoots may be gathered in May, and candied, or preserved in sugar, for which purpose they are bought by confectioners; its seeds, leaves, and root being very aromatic and stimulating, are sometimes used in medicine. Old medical practitioners thought so highly of its virtues, that they called it the angelic herb; and hence its name. A piece kept under the tongue, or held to the nose, was believed to preserve the user from infection; and the water in which it was sodden for a few hours was considered as highly cordial, and a promoter of perspiration. In Norway and Sweden the leaves and stalks are eaten, either uncooked as a salad, or boiled with meat or fish. Its seeds are used in those countries to give a flavour to spirits.

CABBAGES.—Plant to come into use during next spring, if not done as directed last week.

CABBAGES, late sown, should be pricked out from their seed-beds. Plant them in rows, on a sloping dry bank, from three to six inches apart, according to their size.

CELERY.—Earth up. It is the most common practice to do this about two or three inches at a time; this, however, is a bad system, for every earthing-up increases the risk of the soil getting into the heart of the plants, and thereby causing their decay; but besides this danger, celery plants frequently earthed-up grow much more slowly than if allowed to attain a height

of eighteen or twenty-four inches before they are earthed-up at all, and after that are again allowed to grow so high as not to require more than another earthing before they are used at table. Celery becomes white, or blanched, in four or five weeks from the time of its being earthed-up.

CHIVES.—Plant. This small species of the onion-tribe is a native of England, and deserves to be much more cultivated; indeed, no garden should be without it where the onion is in request. It is so hardy, that no winter destroys it in this country. The green tops may be cut and cut again throughout the year, yielding an unfailing supply of young onions. A single row of about eight yards long will be enough for a family. The edge of a bed is a good place. The soil should be rich and light. Insert six or eight of the little bulbs in a hole made with a dibble, not more than an inch deep, and the holes eight inches apart. They will require to be taken up at the end of two or three years, and a fresh plantation made in the same way. There will be many more bulbs than will be required for planting, and those not wanted may be washed and used as onions.

NASTURTIUM BERRIES.—Gather as they ripen. They should be very dry and hard before storing. Some will yet be found green and sufficiently tender for pickling. Some persons prefer their flavour to those of the caper berries; but the best of all substitutes for these are the green berries of the elder.

ROSEMARY.—Plant. There are three varieties, the golden and the silvery-striped; but the green is the hardest, most aromatic, and usually cultivated. Rooted plants must be obtained, for slips or cuttings will not grow at this season. A light soil, well drained, and with some lime rubbish dug in as a manure, suits it best. (It is a very useful herb. Its flowers are employed in making Hungary-water, and its leaves in the manufacture of Eau de Cologne. Sprigs of it are a very good garnish for some dishes. Infused in water, and with the addition of a little sugar and acid to render it palatable, it is frequently used to make a drink for fevered patients. The old physicians

adopted it in various modes for many diseases of the brain, over which it was considered to have such an influence that it was called Herb-memory. Shakspeare alludes to this when he makes Ophelia give Laertes a sprig of this plant "for remembrance.")

A TEMPORARY PIT, for pricking therein small lettuces and cauliflower plants, may be formed in a sheltered dry open corner. It may be made of turfs, sods of earth, clay, loose bricks, or rough slabs of wood. During severe weather in the winter it may be covered over with straw or other mats, fern, or boughs of evergreens.

DEAD LEAVES, rake up and store for manure as fast as they fall, for if left upon the ground among the crops, they afford shelter for slugs and other vermin,—destroyers of lettuce, cabbage, spinach, and other winter-standing crops.

HOE, or stir with a fork, the surface of the ground among growing crops whenever the weather is dry and favourable for the operation. The surface cannot be loosened too often at any season of the year.

VACANT GROUND, trench and throw up into rough ridges, to allow the air and frosts to penetrate the soil thoroughly.

SLUGS and SNAILS may now most successfully be enticed and destroyed, by placing here and there upon the beds little heaps of fresh brewer's grains. If these heaps are visited about nine in the evening, the slugs will be found thronging upon them, and may be destroyed by dusting them over with quick-lime. The heaps must be renewed for two or three successive evenings; and if visited in the same manner, a most effectual clearance will be made.

J. BARNES.

MISCELLANEOUS INFORMATION.

OUR OLD GARDENERS.

[We promised a correspondent, in our last week's paper, to furnish some particulars of THOMAS HILL, and we regret that our information is so scanty. The search for this information, however, has led us to the conclusion, that, among the works of "our old gardeners," there are scraps of information which will induce us, under this title, occasionally to give some similar notices of those ancient knights of the spade.]

THOMAS HILL, HYLLE, or HYLLE (for in his printed works, according to the custom of that age, there is not much uniformity in the spelling), appears to have been a native of the metropolis—or, at all events, he was here long resident; for, from the title-pages of his works during half a century, the adjunct of "Londoner" is never absent. He appears to have been a hacknied compiler of books, and to have written as the publisher required—on astronomy, arithmetic, bees, dreams, physiognomy, gardening, and divinity. I believe him to be the Dr. Hill who, finally becoming a convert to the religion of Rome, passed the last years of his life on the Continent, and is briefly noticed by Wood amongst the learned of Oxford. He died at the commencement of the seventeenth century.

The absurdities of his horticultural writings need alone be noticed here; and first among those writings may be quoted, "A Briefe Treatyse of Gardeninge; teaching the apt dressing, sowing, and setting of Gardens, with the remedies against such beastes, wormes, flies, &c., that commonlye annoyne Gardens: encreased by me the second tyme." This edition was printed in a small octo-decimo volume in 1563. Various editions were subsequently published, and some of these with this addition to the title-page: "To whiche is added much necessarie matter, and a number of secretes, with the phisicke helps belonging to eche herbe, &c." The edition of 1579, which is now before us, mentions nothing about gardening in its title-page, which merely sets forth that it is "A profitable instruction of the perfite ordering of Bees—To which is annexed a proper Treatise of Dearth and Plentie meete for husbandmen to know, &c." But in his preface Hill says, "I have joyned this little treatise unto my booke of Gardening, for that most men do joyne them both together."

The work is comprised in ninety-two pages, and it is not until the seventy-seventh that he touches upon Gardening. Of the previous seventy-six pages, I have no other observation to make than that he says, "When the first of Januarie beginneth on the Wednesday, then shall the winter be warm and calme; the spring wette, and disposed to sicknesse; the summer

hotte, and the harvest unprofitable. Yet plentie of oyle and wines."

Mr. Hill's horticultural treatise begins with "The Booke of the Arte or Craft of Planting and Graffing;" and, of his genuine knowledge of his subject, a fair judgment may be formed from his stating, that, if the small end of the graft be inserted into the stock, the "fruite shal have no core;" and that, if an apple graft be inserted in a stock of elm or alder, "it shal beare red apples." These were things of certainty—the "Londoner" had no doubt about the matter!

To make a pear-tree fruitful, it was to have a brisk dose of physic: "Bore a hole into its stem," says Mr. Hill, "and put in some Scammony;" and, in grammar equal to the truth imparted, he adds, and it shall bear "much more plentifullur."

He is not altogether bad in his recommendations, for he in a degree forestalled Mr. Forsyth, by recommending clay plisters to all wounds of trees; but this better information does not prevail long, for he speedily proceeds to recommend planting when the moon is in Taurus; and in sowing pepins and kernels, that the end which was next the root be so placed as to point to the north-east! With the exception of some erroneous directions for sowing roses, the work is confined to fruit-trees, and chiefly concerns their grafting.

The work of 1563 is altogether different, and enters more fully into the proper situation and ordering of a garden—partly, he says, from his own experience; and he refers to a smaller and earlier edition of the work. But it is chiefly, or rather, almost entirely a compilation from the old Roman writers—Varro, Cato, and Palladius.

It contains figures of mazes, to be constructed of lavender-cotton, and enumerates, as inhabitants of the kitchen-garden, "spynach, borage, endive, blete, lettis, orache or arage, betes, coolewoites, cresses, parcelye, sperage (asparagus), malowes, savery, alisander, annise, cummine, colyander, mustarde, ceruyl, dyll, rue, charvil, saverye, isop (hyssop), mynt, tyme, origanny, lekes, onions, coucumbers, gourdes or melons, garlicke, beanes, radyshc, majjoram, purslane, pene-royal, artichocke, and pasnepe."

COTTAGE AND ALLOTMENT GARDENING.

(No. 2.)

BY THE EDITOR.

MANURING.—We are all accustomed to confound the words "muck" and "manure," as if there were no other manure than the dung of animals. This is a great error. One of the best of all manures is ground bones; and every one who has lived on the sea-coast—in Essex, Devonshire, Cornwall, and elsewhere—knows that sea-weed and fish are there very extensively used as manures, and that they cause very great crops to be produced. But, more than this, every cottager knows that rotten wood—the bottom of an old wood-stack, for example,—is a capital manure; and if he tries, he will find that leaves, weeds, the refuse and slops from the house, all kept, and added day by day as occurring, in one heap,—in a corner of the garden far away from the cottage,—will make, as a cottager generally calls it, "capital stuff for the garden." In fact, no dead animal or vegetable matters, bones, soap-suds, etc., should be thrown away—for it is saved if put upon the muck-heap. It often happens, too, that a good deal of weedy, grassy clods can be pared off the banks about a garden. These should be collected into a heap and charred—not burnt to ashes. To effect this, pile the clods over a small bundle of dry sticks, and set these alight, leaving a small hole to admit air to the fire; and as the fire burns through to near the sides of the pile, heap on fresh clods, so as to keep the fire smouldering. By this means you will have what is good manure—roasted or charred turf and earth; but if you allow the flames to burst through, you will have nothing but ashes, which, compared with the charred, are almost worthless. This roasted turf and earth is, indeed, a very excellent manure. Mr. Barnes, gardener to Lady Rolle, who could have any manure he might wish, prefers it to any other. But although this is so, and Mr. Barnes is quite right, yet the cottager cannot get enough of it. He must save every household refuse, too; but he must do more—he must let his children gather the horse-droppings from the road, even if he has a pig besides, and can have its manure for his garden. You cannot have a good crop without you give it manure, and plenty of it too.

Before leaving the subject of charred refuse as a manure, we will give one out of many results arising from its use—for one fact is more minded than twenty assertions, and most men think as the gardener who once enquired of us, "Is that a has-been, or is it only a may-be?" Now, the use of charred rubbish is "a has-been;" it has been tried all over England, and is found to be a most excellent manure. "It is suitable," says Mr. Barnes, "for the culture of every kind of plant, whether it be grown on the farm or in the garden, in the hot-house, green-house, conservatory, or open border,"—and here is one of his proofs:

"A piece of ground that was cropped with coleworts last autumn (1843) was cleared early, and the refuse trenched in during the winter. Ninety-five feet in length, and ten feet in width, was planted with small onions on the 14th of February, which onions had been sown the second week of September in the previous autumn. They were planted in rows one foot apart, and six inches from plant to plant,—with the intention of drawing every alternate one for use through the summer—but the whole nine rows did not get entirely thinned. The following is the weight when ripe for storing on the 1st of August:

"Five rows grown where 4lbs. of bone-dust to each row had been sown in a drill drawn three inches deep

and filled up, and the onions planted over it, produced 420lbs. weight of onions—each row yielding from 82 to 88lbs.

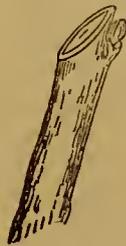
"The other four rows had applied to them, of fresh dry charred refuse and ashes, made from the garden rubbish-heap, two common buckets full—weight, 14lbs. They produced 366lbs. of onions, the rows weighing respectively 99, 89, 95, and 83 lbs; the last row being injured by a row of red cabbage growing near.

"Many of the foregoing onions, which were a mixture of the Globe, Deptford, and Reading, measured in circumference from 14 to 16½ inches, and weighed as many ounces. I weighed twelve together, that turned the scale at 12lb. 9oz. I can only fancy what a wonderful saving and benefit it would be to the country, to char the refuse of old tan, chips, saw-dust, ditch scourings containing sods, weeds, rushes, and refuse. By keeping the surface of the earth well stirred, no crops appear to suffer by drought that are manured by charrings, but continue in the most vigorous health throughout the season, never suffering materially by either drought or moisture."

On spring-sown onions and on turnips, Mr. Barnes finds charred or carbonized vegetable refuse equally beneficial. Three rows, each 95 feet long, of the white globe onion, manured with bone-dust, weighed 251lbs.; whilst three similar rows of the same variety, and grown under precisely similar circumstances, but manured with charrings, weighed 289 lbs.

PRUNING.

PRUNING is the art of cutting the branches of a plant so as to obtain the best and greatest amount of the produce desired from it, and with the least possible injury to the plant. This is perhaps the most accurate definition that can be given; but we are not intending to enter largely into the subject, and only give this definition that we may observe, at this pruning season, that to act up to it in pruning trees, the knife employed cannot be too sharp, for to cause to them "the least possible injury," the cuts ought to be as smooth as can be, and in proportion to the smoothness of their surfaces will be the readiness with which they heal. A cut smoothly made, without any tearing of the bark, and properly near to, but not close to a bud, will often heal over in a few weeks. The annexed is the best example we can offer, and if the pruner keeps this in his memory he cannot have a better pattern.



There is here a sufficient slope to throw off moisture from the cut surface, and away from the bud; and there is enough of bark (half an inch) above the bud to prevent the sap vessels of the bud being injured, and to enable the extra vigour, always observable in their vicinity, to be exercised in secreting matter for healing over the wound.

BRITTON ABBOT;
OR, WHAT CAN BE DONE.

Two miles from Tadcaster, on the left hand side of the road to York, there stood in the year 1804, and, perhaps, it is standing there still, a beautiful little cottage with a garden, which unfailingly attracted the eye of the traveller. The slip of land, exactly a rood, was inclosed by a cut quick-hedge, and within it were

the cottage, fifteen apple-trees, one green-gage, three winesour plum-trees, two apricot-trees, and several bushes of the currant and gooseberry. Three hives of bees also were there. Neatness and good order strikingly characterized the whole.

Now the proprietor of this well-managed plot was a labourer, named Britton Abbot, and he was then sixty-seven years' old, and his wife numbered nearly the same number of years. They had been married forty-five of that number, and had reared six children, who, at the time of which we are writing, were living and thriving in the world. One was the wife of a carpenter at York; another occupied a little farm at Sheffield; the third married a labourer, who had built himself a cottage at Tadcaster, and wanted nothing, as Britton Abbot observed, "but a bit of ground for a garden."

Britton Abbot's history offers warning as well as encouragement, for it illustrates the truth that a labourer should look to his plot of ground for help to live, and not for entire support. He was thrifty from boyhood, and by the time he was twenty-two, even without the aid of a savings bank (for savings banks were then unknown), had contrived to accumulate forty pounds. On this little capital he married, and took a small farm of thirty pounds a year rental. In two years he gave it up, for he had lost upon it nearly all his savings; but he was not conquered, or even disheartened, and he had learned wisdom. He was still convinced of the value of a plot of ground to the labourer, but he did not seek for so much as he did before.

He asked 'Squire Fairfax to let him have a little bit of ground by the road-side, telling the 'squire with honest confidence, that if he would grant him the boon, "he would show him the fashions on it." The 'squire complied with his request, and when he observed the good skill and industry that Abbot bestowed upon the little inclosure, he allowed him to have it rent-free. Abbot's reply deserves to be remembered—"Now, sir, you have a pleasure in seeing my cottage and garden neat; and why should not other 'squires have the same pleasure in seeing the cottages and gardens neat about them? The poor would then be happy, and would love them and the place where they lived; but now every nook is to be let to the great farmers."

Abbot was now a thriving man. He was a good workman, in constant employ, and so had his week's wages regularly; lived rent-free; and from his garden obtained annually forty bushels of potatoes, besides other vegetables; his fruit sold on the average for £3 or £4; his wife had occasional work; spun at her leisure; and looked after the house and garden. "To be sure," said Abbot, "I have a grand character in all this country;" and if every labourer had the same steady habits, he might have a character equally "grand," and be equally happy and equally prosperous; "happy in his own industry and good management; in the beauty and comfort of his cottage, and in the extreme fertility of his garden."*—G.

HARDY PLANTS LATELY MADE KNOWN, AND WORTH CULTIVATING.

TORENIA ASIATICA is not quite hardy, for, like the scarlet pelargonium (geranium), it requires to be housed during the winter; yet, like that, it is good for planting out in the flower-borders, over the surface of

* Minutes of Board of Agriculture.

which it spreads, and its deep blue flowers are highly ornamental. Its generic name, *Torenia*, is in commemoration of Olof Toreen, a Swedish traveller and naturalist; and its specific name, *Asiatica*, informs us that it is a native of Asia, for it is found in almost every part of southern India. It is easily propagated by cuttings planted in light soil, and placed under a hand-glass in a hot-bed. It may be increased also by dividing the roots. It is not improbable, also, that the branches will root in the borders if pegged down at a joint and covered with earth. The plants are benefited by being manured with a mixture of peat and leaf-mould.—(*Paxton*, etc.)

HINTS FROM OUR CONTEMPORARIES.

TULIPS.—Mr. Groom, of Clapham Rise, near London, is one of the most successful, and most extensive cultivators of this flower. His tulip-bed is fifty yards long, and four feet three inches broad, containing two thousand bulbs. His pet tulip is *Victoria Regina* (Queen Victoria). Its form is perfect; and its ground or prevailing colour snowy white, with the feathering and flame rosy purple. It is a second-row flower, and its price five guineas.—(*Midland Florist*).

[The *feathering* of a tulip is a dark edge round the petals or flower-leaves. The *flame* is a dark, pointed spot, in the shape of a candle-flame, in the centre of each petal. Tulips, according to the height to which their flower-stems grow, are called 1st, 2nd, 3rd, and 4th-row flowers. The shortest are put next the edge of the bed, and are called, first-row flowers. The tallest, in the middle of the bed, are the fourth-row flowers].

WHITE RUST OF CABBAGES.—No season has ever been more productive of disease to plants than has the last wet, cold summer. Among the diseases that have attacked them, none have been either so fatal or so general as the rust. This is a disease occasioned by the growth upon them of very small fungi (mushrooms), and it has destroyed many crops of wheat, grapes, and cabbages. The rust of the cabbage is occasioned by a little fungus called *Cystopus (abugo) candidus* (white cystopus). When a cabbage is severely attacked by it, its leaves and every other part thicken and become distorted, owing to the roots of the fungus penetrating and breaking through the sap-vessels of the cabbage.—(*Hort. Society's Journal*, iii. 265.)

[If only one or two cabbages are thus attacked, the best remedy will be to pull them up and burn them, to prevent the fungus shedding its seeds on other cabbages. If many are attacked, we recommend the soil about their roots to be sprinkled with salt, an ounce around each cabbage, and to dust its leaves early in the morning, whilst the dew is upon it, with quick lime.]

MELONS IN THE OPEN AIR.—Mr. Williams of Pitmaston, has for some years past been trying to give increased hardness to the melon; and with this view made use every year of the seed matured in the open air during the preceding summer. The plants have, in consequence, become so hardy, that in the two last seasons they grew, and the fruit set as well as a common gourd. "The whole contrivance for presenting the plant to the solar influence in the most advantageous way, and at the same time giving a little warmth to the roots, does not cost more than a few shillings."

He adds, "I have already cut fifteen melons, and my gardener tells me there are upwards of thirty-five

that will ripen before the plants are killed by the cold."

The open-air bed is raised on the ground-level, on a base 24 feet in length, and 8½ feet in width. The back is of brick-work (against a south wall or paling, therefore, would do), 3 feet 3 inches high; the ends are also of brick-work, and slope from the above height at back, to the level of the ground at the front. The bed is composed of weeds, bean-stalks, old tan, garden rubbish, and litter of any kind, made compact; and finally, about 9 inches of only common garden-soil, in which the melons are planted. When finished, it presents a uniformly inclined plane, facing the south; but Mr. Williams thinks he should prefer an aspect a little to the south-east.

As the soil is raised a little higher than the back, to allow for sinking, the slope forms an angle with the ground-line of about 23°. Nine plants raised singly in pots were planted out on this slope, and, till somewhat established, they require to be protected by hand-glasses; flat tiles are then laid over the surface of the bed. The shoots or vines of the melons are neither stopped nor thinned; in short, with the exception of merely pegging them down, there is nothing at all done to them. Instead of tiles being employed, as above, slates were formerly used; but these became at times so excessively heated by the sun's rays, that the plants suffered from being subjected to the consequent vicissitude of so great a heat in the day, alternately with the cold to which they were exposed at night. Tiles, on the contrary, do not absorb heat so rapidly, but they retain it longer.

The situation of the melon-bed is not particularly sheltered; there is a hedge on the north side, at the distance of 15 feet from the back of the melon-bed, but it is not high. Two feet behind the hedge there is, however, some tall elm-trees, and at some distance there is a row of the same kind of trees, which afford shelter from the west winds. The mode in which the plants are reared is an important point; they are raised with as little heat as possible, and are all along accustomed to plenty of air. Mr. Williams remarks that, "when melon-plants are raised for the purpose of being planted on a bed of the above description in the open air, the pots in which the seeds are sown should never be plunged in a warm dung or tan-bed; for when plants so treated are removed into the common ground, if the weather proves cold and wet, their leaves turn yellow, and they afterwards become sickly, and continue so a long time."—(*Ibid.* 273).

SOUND PHILOSOPHY.—At the last meeting of the "Farnley Tyas Society, for the Encouragement of Spade Husbandry," John Nowell, Esq. made these observations, deserving of circulation throughout the length and breadth of the land:—"Allow me to caution the more sanguine part of the operatives not to delude themselves with the notion that the rood of land is everything, and that the industry and care required in its cultivation, is nothing. A rood of land will not support a working man—but it will help him. It will require, most assuredly, all his care and all his attention, while waiting for his usual employ, in a time of good trade, to keep up the cultivation of his garden. And should the working man neither neglect his handicraft employment nor his land, in favourable seasons a most certain issue will be the result.* He cannot well starve before Christmas. Manufactures and agriculture ought to be handmaids to each other. They will flourish, or they will decay together; and

far be it from our wish to elevate or to depress one at the expense of the other. Rather be it our desire to establish a closer bond of union between them. Let the master manufacturer surround his manufactory with rood-gardens. He will thus secure the steadiest and the best workmen, and attach them to his service; and he cannot but rejoice to see his dependents happy in the possession of their little winter store, and under his daily observation, to mark their improvement in the duties of husband, father, and subject. Give your neighbour a 'stake in the hedge,' and in defending his own slender stake against intruders, he will necessarily defend your larger 'stake.'"—(*Labourer's Friend.*)

AN INTERESTING SCENE. Profit on Labourers' Allotments.—On Thursday, the 21st of May, the allotment tenants of Andrew Johnstone, Esq., of Halesworth, had their audit. There were thirty tenants holding one-quarter of an acre each, four old men one-eighth of an acre, and ten boys each occupying one rod, as a reward of attendance and good behaviour at the Evening Adult-school. The tenants assembled at seven P.M., in the Infant School-room, which was decorated with boughs, etc., and with inscriptions neatly printed by the boys, such as "God speed the spade," "Long live the kind giver," "Honour the Lord with the first fruits of your allotments," etc. The principal ornament of the room was a display, on a long table, of specimens of the produce, which was pronounced by the best judges to be highly creditable. Among them were excellent wheat, fine potatoes of various sorts, beans, peas, very large and straight carrots, orange beet, turnips, and cabbages, with Jerusalem artichokes, and many other vegetables. One tenant furnished some excellent flowers raised from seed, which he sells at a good profit. The rents were all paid; after which Mr. Johnstone addressed some useful remarks to his tenants; first on their moral and religious conduct, the education of their children, etc., and then on the management of their ground; after this he called for the account of profit and loss, and to each of the four tenants who exhibited the most produce and furnished well-kept accounts, he presented a good gardening tool, to which a fifth was added by the kindness of a tradesman in the town, as a token of his approbation of the show. The following are the results of some of the accounts:

(1)	£ s. d.	(3)	£ s. d.
Produce . . .	6 9 1	Produce . . .	5 13 2
Rent and outlay	3 12 7	Rent and outlay	2 3 1
Profit . . .	2 16 6	Profit . . .	3 10 1
(2)		(4)	
Produce . . .	6 6 9	Produce . . .	6 14 10
Rent and outlay	3 1 7	Rent and outlay	3 0 0
Profit . . .	3 5 2	Profit . . .	3 14 10

The boys were next addressed; and the result of their efforts proved one of the most interesting features of the evening. It appeared that ten boys had been allowed one rod of land, for which they were to pay sixpence rent. The account of the produce was as follows:

	s. d.		s. d.
1 . . .	5 6	6 . . .	3 0
2 . . .	5 0	7 . . .	3 0
3 . . .	4 6	8 . . .	3 0
4 . . .	4 6	9 . . .	2 6
5 . . .	3 6	10 . . .	2 6

To the boys who had gained the most, and thereby

* Mr. Nowell was especially addressing the Yorkshire weavers, but the lesson is applicable to all districts, whether manufacturing or agricultural.

proved that they had done the best, prizes of garden tools were given, and their smiling countenances showed their satisfaction when Mr. Johnstone announced that an increase would be afforded to the boys' allotments. The landlord then proceeded to read a portion of Scripture, and the Doxology was sung; after which, good meat pies, smoking hot, were distributed to each tenant, including the boys, and all retired highly satisfied.—(*The Labourers' Friend.*)

AUTUMN-PLANTING POTATOES.—A writer in the *Gardener's Chronicle* relates a series of experiments in which the potatoes planted in last November, and at intervals up to February, were uniformly good, planted in an old garden; but as uniformly diseased when planted in February, and at intervals until the end of April, upon a soil rather heavier.

THE TULIP AND THE MYRTLE.

'T WAS on the border of a stream
A gaily painted Tulip stood;
And gilded by the morning beam,
Survey'd her beauties in the flood.

And sure, more lovely to behold
Might nothing meet the wistful eye,
Than crimson fading into gold
In streaks of fairer symmetry.

The beauteous flower, with pride elate;
Ah me! that pride with beauty dwells!
Vainly affects superior state,
And thus in empty fancy swells.

"O lustre of unrivall'd bloom,
Fair painting of a hand Divine!
Superior far to mortal doom,
The hues of Heaven alone are mine.

"Away! ye worthless, formless race,
Ye weeds that boast the name of flowers;
No more my native bed disgrace,
Unmeet for tribes so mean as yours.

"Shall the bright daughter of the sun
Associate with the shrubs of earth?
Ye slaves, your sovereign's presence shun,
Respect her beauties and her birth!

"And thou, dull, sullen evergreen,
Shalt thou my shining sphere invade?—
My noon-day beauties beam unseen,
Obscured beneath thy dusky shade."

"Deluded flower!" the Myrtle cries,
"Shall we thy moment's bloom adore?
The meanest shrub that you despise,
The meanest flower has merit more.

"That daisy, in its simple bloom,
Shall last along the changing year;
Blush on the snow of winter's gloom,
And bid the smiling spring appear.

"The violet that, those banks beneath,
Hides from thy scorn its modest head,
Shall fill the air with fragrant breath,
When thou art in thy dusty bed.

"Even I, who boast no golden shade,
Am of no shining tints possess'd
When low thy lucid form is laid,
Shall bloom on many a lovely breast.

"And he, whose kind and fostering care
To thee, to me, our beings gave,
Shall near his breast my flowers wear,
And walk regardless o'er thy grave.

"Deluded flower! the friendly screen
That hides thee from the noontide ray,
And mocks thy passion to be seen,
Prolongs the transitory day.

"But kindly deeds with scorn repaid,
No more by virtue need be done,—
I now withdraw my dusky shade,
And yield thee to thy darling sun."

Fierce on the flower the scorching beam
With all its weight of glory, fell;
The flower exulting caught the gleam,
And lent his leaves a bolder swell.

Expanded by the searching fire,
The curling leaves the breast disclosed;
The mantling bloom was painted higher,
And every latent charm exposed.

But when the sun was sliding low,
And evening came, with dews so cold;
The wanton beauty ceased to blow,
And sought her bending leaves to fold.

Those leaves, alas! no more would close,—
Relax'd, exhausted, sickening, pale;
They left her to a parent's woes,
And fled before the rising gale.

DR. LANGHORNE.

TO CORRESPONDENTS.

H. WHITE.—The quickest mode of softening old putty is by passing over it repeatedly an iron, heated nearly to redness. If the putty is so very old and hard as not to be thus softened, the softening may be effected more slowly by keeping upon it, for a few hours, rags wetted with a strong solution of caustic potash.

W. S.—We are of opinion that there is such a variety of the grape as the Red Hamburg, and we will state our reasons for so thinking next week.

A FRIEND (Hackney) will perceive from our first Number, as well as the present, that we have strictly excluded all the objectionable Advertisements alluded to.

WEEKLY CALENDAR.

M D	W D	OCTOBER 19—25, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
19	Th.	Elder leaves fall.	Tall Coreopsis or Tick-	33 a 6	57 a 4	11 15	☾	15 0	293
20	F.	Walnut leafless.	Yellow Sultan. lseed	35	55	morn.	23	15 10	294
21	S.	Sun's declination, 10° 51' S.	Hairy Silphium.	37	53	0 21	24	15 20	295
22	SUN.	18 SUNDAY AFTER TRINITY.	3-leaved Silphium.	39	51	1 29	25	15 28	296
23	M	Privet berries ripe.	Rushy Starwort.	40	49	2 35	26	15 37	297
24	Tu.	Golden Plover arrives.	Wavy Starwort.	42	47	3 40	27	15 44	298
25	W	Crispin.	Fleabane-like Starwort.	44	45	4 44	28	15 51	299

ST. CRISPIN, together with St. Crispian, were adopted by shoemakers to be their tutelary saints, because these two brothers, and martyrs of the Christian faith, had learned their handicraft to avoid the necessity of being burdensome to the early converts to whom they preached. They were beheaded at Soissons, about the year 308. The shoemakers at the principal towns of Scotland assemble annually and choose a king upon this day.

PHENOMENA OF THE SEASON.—In the calendar above we have noticed the customary events of the week in the vegetable world. Among animals, we may observe that this is the period of migration

INSECTS.—The Angle-shades Moth (*Phlogophora metictulosa*) is so called from the various shades of



tribes, and a few others of our culinary vegetables. They are usually green, but sometimes brownish; they have a row of oblong white spots on the back, and a white line on each side.

with many birds who are only our periodical visitors. Either during last week or the beginning of this, the swallow has departed; and, in a few days after, they make their appearance on the coast of Africa. The nightingale leaves us about a week earlier, and speedily afterwards is heard in the thickest woods of Lower Egypt. On the other hand, the woodcock and snipe now return to us from Sweden, and other northern countries, where they pass their summer life. The cross-bill also visits us occasionally, and near Oldbury, in Gloucestershire, has sometimes come before the apples have been all gathered—in which case this bird makes sad havoc with that hope of our western orchardists.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.
19	Fine.	Fine.	Fine.	Cloudy.	Cloudy.	Fine.	Fine.
20	Fine.	Fine.	Cloudy.	Fine.	Fine.	Fine.	Fine.
21	Fine.	Fine.	Showery.	Cloudy.	Fine.	Rain.	Rain.
22	Hazy.	Rain.	Cloudy.	Rain.	Cloudy.	Cloudy.	Fine.
23	Rain.	Rain.	Fine.	Cloudy.	Fine.	Fine.	Rain.
24	Cloudy.	Rain.	Cloudy.	Rain.	Fine.	Fine.	Showery.
25	Cloudy.	Rain.	Cloudy.	Rain.	Cloudy.	Cloudy.	Fine.

brown which mottle the edges of the upper wings, and form a purplish triangled mark in the centre of those wings. This is one of the handsomest of the evening moths, and also one of the larger, for it is two inches across the expanded wings. It makes its appearance at intervals, from the end of May until the close of October. Its upper wings are white, tinged with pink, clouded with olive-brown, and marked and edged as above noticed. The hinder margins of those wings are irregularly notched. The under wings, at their tips, are also a pinky white, having in their centre a gray, crescent-like mark, and also two or three slight lines of the same colour. The horns (antennae) are long and slender, and the whole body variously tufted with hairs. Its caterpillars feed upon our cabbage

On more than one occasion we have heard gardeners differ in opinion as to whether there are two distinct varieties of the Hamburg grape—the black and the red. The question has again been brought to our notice by a correspondent, who justly observes that “amateurs may be excused for doubting, since even first-rate authorities differ in their statements as to the identity or non-identity of the grape or grapes in question.”

In the “Catalogue of Fruits” published by the London Horticultural Society—an authority to which we are always predisposed to bow—the Black and Red Hamburg are said to be the same variety; and the characteristics are thus epitomised:—“Bunch, large; colour, black; berry, roundish; skin, thick; flavour, sweet; quality, first-rate.” That this is an accurate description of the black Hamburg is beyond dispute: it is the description given long previously by Miller, Speechley, and Forsyth; but then all these authorities also agree in describing the Red Hamburg, which they say was sometimes called the Gibraltar grape, as a distinct variety. In this decision they are sustained by later authorities, of whom we need quote no others than Loudon and George Lindley. Loudon (*Encyclop. of Gardening*, p. 753,) says the red Ham-

burgh was also called Warner's, or Hampton Court grape, and that it is “reckoned the best of Hamburgs.” Mr. Lindley, in his work edited by Dr. Lindley (*Guide to the Orchard*), is still more explicit. He says, “The berries of this (the red Hamburg) are of a dark red or purple colour, with a thin skin and a juicy, delicate flesh. The size and figure of both the bunch and the berry are very much like the black Hamburg, except the latter being less oval, and growing more loosely on the bunches. When the berries of the red Hamburg are imperfectly ripened, they are of a pale brown colour, which occasions it to be called the brown Hamburg; but, if perfectly matured, it is by many considered to be the richest and best-flavoured of the two. The leaves of this in the autumn become mottled with green, purple, and yellow; those of the black Hamburg are mottled with green and yellow only. They were both brought into this country by Mr. Warner, of Rotherhithe. The oldest vine of this kind known in England is that at Valentine's House, near Ilford, in Essex. Mr. Gilpin (*Forest Scenery*, i. 153,) says it was planted a cutting in 1758, and is the parent of the well-known Hamburg vine now growing at Hampton Court.”

We coincide with those who think the red Hamburgh a variety distinct from the black Hamburgh, and we ground our opinion not upon that of the first importer of them both, nor upon the opinions of the excellent authorities we have quoted, but upon the experience gained by cultivating a red Hamburgh vine for two years in a greenhouse under our own exclusive care. This experience teaches us, that if the grapes are prematurely ripened—that is, ripened before they have attained to the size of which they are capable of attaining—if they are exposed to an excess of light by an over thinning-away of the leaves, then the fruit of the red Hamburgh may be made to approach nearly, but never exactly to resemble, that of the Black Hamburgh. On the other hand, if a due quantity of leaves are left, and, by an abundant admission of air, the fruit is allowed gradually to attain the full size it would naturally attain before the ripening process begins, then the red Hamburgh cannot be mistaken for the black Hamburgh. The berries are too much of a purplish red in colour, too thin of skin, too tender fleshed, and too far departing from complete roundness. That the grapes in the greenhouse we have mentioned are not ill-grown, we have the testimony of the judges at the Hampshire Horticultural Show in November last—for they awarded

to it the first prize for “Red Hamburgh Grapes, grown without heat;” and we hope to run a good race for the same prize in the November now approaching.

The decision of this question, as to the non-identity of the two varieties, is of some interest to gardeners; for we are satisfied that a prize has often been lost because the judges have thought the grapes deficient in colour as black Hamburghs, when being, in truth, red Hamburghs, they could not have been brought to equal their competitors in depth of colour.

To our next Number will be added another department—“THE WEEK’S GREENHOUSE AND WINDOW-GARDENING.” A sufficient guarantee for its excellence is that it will be furnished by MR. D. BEATON, Gardener to SIR W. MIDDLETON, Bart., at Shrubland Park. We are induced to add this department because our large sale justifies our giving weekly twelve pages instead of eight, as originally intended.

WE have to apologise to our readers for the insertion of the Poetry at the end of our last Number. It was placed there for no other reason than that part of the copy intended for insertion had been mislaid during the unavoidable absence of the Editor from London.

THE WEEK’S FRUIT-GARDENING.

ARRANGEMENT OF FRUIT-TREES IN THE GARDEN OF THE AMATEUR.—Having in our last thrown out suggestions, founded on a very long and extensive practice, for the most ready mode of correcting the staple of soils for fruit-trees, we now proceed to offer some advice about the disposal of them in the amateur’s garden. We must thus divide this portion of the matter, for the cottager will of course need special advice on this head, although he, too, may occasionally take a hint from the amateur’s practice.

ASPECT OF GARDEN.—In proceeding with this subject, we will suppose the case of a new garden in an eligible situation. A sloping surface is always considered an advantage, provided the slope is very moderate, and inclines to any of the points from south-east to south-west; other inclinations or aspects are much inferior.

SHELTER.—The walls or other boundaries being built, the next matter is, to seek extra protection, if possible, by means of planting; indeed, this may be accounted the first step of the two. We do not by any means advocate the planting large trees close to the garden-wall; this is a most erroneous course of proceeding. In the first place, they prevent the training of some very useful fruits on the outside of the garden-wall; and, in the second place, protection-trees or shrubs thus situated do serious injury to the fruit-trees in the interior of the garden, when their boughs have grown so as to overhang the wall. However, the amateur is not unfrequently situated near to other buildings; and in such cases, severe limitation of room precludes the possibility of selecting a proper site. There is no real necessity for a continuous belt; a good group of trees at the north-western side, and another ranging from north to east, will suffice, pro-

vided the kinds are well selected. The Scotch fir, the holly, and the spruce fir, if moist soil, are particularly eligible as evergreens; and the beech is by far the best deciduous tree to intermix with them. The latter retains its leaves for a greater length of time than most forest trees. The beech, however, requires that some of its side-shoots be occasionally pruned in, or the consequence will be, that the beech will overgrow and ruin the other trees, its companions. In new plantations of this kind a few of the more rapid-growing poplars may be introduced, to be removed after the beech and firs get up; they produce a more speedy effect than any of the others.

PLANTING AND UNDER CROPS.—We come now to the disposal of the interior area. There are two distinct modes of procedure, either of which may be observed as a guiding principle in this affair. The one, so to plan it as not to crop the fruit-borders; the other, to include a course of such cropping.

We would advise the former mode: we are, however, willing to admit that it will make a week or so difference in the earliness of the peas, cauliflowers, lettuces, etc.; which to some persons are an important consideration. We will now deal with the ordinary mode, that is to say, of cropping in combination with fruit culture: but in a future paper we will show how the other mode may be rendered both more economical and more certain in its results as regards fruit-culture.

BORDERS AND WALKS.—A border of ten feet is amply sufficient next the wall; next to that border a walk of at least four feet width, and adjoining this walk another border, with an alley behind it, separating it from the quarters of the garden. The border last named should be at the least six feet wide; this, carried

all round the garden, we hold to be the most eligible mode by far where cropping must be carried out.

ASPECTS.—We may now briefly advert to the different aspects. The south wall, or rather southern aspects, should be reserved for the apricot, the peach, the nectarine, and the vine, anywhere south of the midland countries; but north of them, the vine must be omitted; if any attempt be made to grow it, the side of a house facing any point from south-east to south-west, provided there is a fireplace behind, will be the most eligible situation. The apricot, however, in the northern countries, is by far the most profitable crop for a warm gable of this kind. We know many cottagers who make great profits by means of an apricot thus situated. Their mode of management we will advert to in due course, under the head "Cottage Gardening." In the northern countries, some of the very superior Flemish pears, such as the Winter Nelis, will deserve a place on a southern aspect. On the eastern aspect may be placed the principal of the trained plums and pears; and on the western, pears and cherries. On the north aspects, the Morello cherry will be found a most valuable fruit; and by providing nets of a proper mesh to exclude the smallest of the birds, this fruit may be kept with ease until the middle or end of October. Two-thirds of the north aspect may be occupied with this cherry, whilst the remainder may receive a greengage plum, an Orleans, and even the Duke cherry, which makes a fine late dessert fruit in this aspect. Ere long we will speak of the espalier-borders of the amateur. We must now advert to cottage-gardening.

COTTAGE FRUIT-GARDENING.—In our last we suggested the utility of getting forward with all work connected with planting, etc. We may now hint to the cottager the propriety of collecting turfy matters from the lanes, road-sides, or commons; even the scourings of ditches are of much use; for whatever the subsoil may be, the settlings are very nutritious

when made into compost, not only for fruit-trees, but for garden-dressings.

TURF-MANURE.—The cottager should learn well that, above all other matters, turf of any kind is more valuable than people commonly imagine. Where the garden soil is hungry, chopped sod, or turf from soils of a clayey character, are the very best manures that can be put into the holes for his fruit-trees: such furnish not only permanent nourishment during the droughts of summer, when the growth of fruit-trees on sandy or hungry soils frequently becomes stagnated, and then of course they are doubly liable to the attack of insects; the fruits also crack, or become encrusted with fungous matter; and hence the frequent complaints about fruits keeping badly.

Any surplus turfy material, if more than wanted, may be piled up in a corner of the garden, as a reserve stock; and as at this period much coarse herbage, weeds, etc., can be collected, we would advise a thorough trimming of weeds and other vegetable matters wherever they can be got; these may be spread, layer for layer, with the turfy material. If the cottager can procure lime, we particularly advise a good sprinkling of this article between every layer, especially amongst the weeds and over the ditchings. This will tend to mellow and crumble down these raw matters by the next year.

PLANTING.—This is the very best period in the year for planting fruit-trees; and in our next we will offer a list of such as are truly profitable for the cottager; in the mean time we advise him to consider about hedge-row fruits, as adverted to in our last.

GOOSEBERRIES AND CURRANTS.—The bush-fruit may now be removed forthwith, if necessary. Gooseberries and red and white currants like a deep and rather loose soil, containing a good deal of any rotten vegetables. Black currants like a damp soil, and a liberal depth likewise.

R. ERRINGTON.

THE WEEK'S FLOWER-GARDENING.

GENERAL FLOWER-GARDEN.—The season is now fast approaching when we may expect severe weather, therefore every preparation to meet it must be diligently attended to, so that all the stock of plants to supply the garden with flowers next year may be in safe quarters during winter.

WINTER SHELTERS.—Verbenas, petunias, bedding out calceolarias, œnotheras, phlox drummondii, anagallis, dwarf and tall lobelias, should all now be either in frames or pits, ready to be covered when the frost sets in. They are best preserved thickly set either in pots about six inches diameter, or in wide pans. They will require plenty of air in fine weather, and all decaying leaves to be carefully and constantly removed. As little water as possible must be given to them, indeed only just sufficient to keep them from actual flagging.

DOUBLE VIOLETS, to force, should now be put into their proper situation. A gentle hotbed made of leaves, and covered with a two or three-light frame, according to the wants of the family, is a good method to produce plenty of flowers during winter. The plants we suppose to have been prepared, by being planted out singly in a rather shady border during the preceding summer, and will now be nice stocky plants. Lift them up with a garden trowel with as much earth adhering to their roots as possible. The heat of the bed being moderated, and the material,

whether leaves or dung, being covered with four inches of leaf-mould and loam in equal parts, place the plants upon it thickly all over the bed; give them a gentle watering, and shut them up and shade them on sunny days for a fortnight, giving air night and day in all mild weather. As soon as the plants are fairly established, give them the benefit of the sun and light freely, with abundance of air. Their lovely sweet flowers will soon reward you amply for your trouble.

LILY OF THE VALLEY.—The much-admired lily of the valley is also well worthy of similar pains being bestowed upon it. It may be managed easily as follows:—Plant them thickly on a north or west border, and when they have run together in a mass, choose the strongest plants, and, taking these up in large patches, place them upon a similar bed as above-mentioned for the violet: they will flower freely and early with the same management. If required in pots to ornament the hall or drawing-room, they may be put into pots five inches diameter, choosing those with the strongest buds, putting five or six in a pot, and let the pots be plunged up to their rims on the bed, this being covered about eight inches deep either with light earth, old tan, or sawdust, or even coal-ashes, whichever may be most convenient.

AMATEUR'S FLOWER-GARDEN.—The amateur's stock of flowering plants should have the same care as directed in the preceding paragraphs. We suppose

you to have a cold frame, a pit, and a few hand-lights. These should now be well filled with the before-mentioned plants, viz., verbenas, etc. In your pit you might, by being well covered during severe frost, preserve many half-hardy plants that you will find useful in the spring. We mean such plants as scarlet geraniums, fuchsias, the more tender China and tea-scented roses, heliotropes, etc. If you have time and leisure we see no reason why you should not even have a few hyacinths, narcissuses, crocuses, and van hout tulips, under a frame, to flower, a month or two before the season out of doors. Should you determine to try a few, procure the necessary quantity immediately. Pot them, the hyacinth and polyanthus narcissus singly, the others four in each pot; plunge the pots in old tan or coal-ashes, on a bed in an open part of the garden for a month or six weeks, to induce them to form roots previously to placing them in the frame. Examine them from time to time, till you perceive the buds breaking through the earth in the pots. When you find this is the case, remove them into the frames, giving air in fine weather, and protecting them by thick covering of mats and straw in severe weather. Your reward will be the having those fragrant flowers for your window much earlier than in the open air.

ROSES.—This is a good season also to look over your stock of roses. If your collection is not first-rate, we would advise you to lose no time in renewing them. The principle should never be lost sight of in all branches of horticulture and floriculture, that a good kind of any thing under culture is as easily grown as an indifferent one, besides being more profitable and pleasant. Our advice then is—of roses have the best; and in order that you may do so, below is a list of forty sorts, good and distinct, selected from the catalogues of one of the most eminent growers:

1. *Summer Roses, flowering in May and June.*

Provence—Unique.

Moss—Alice Servi, Celina, Comtesse de Noe, White Bath.

Damask—Madame Hardy.

White—Le Seduisante, Sophie de Marvoilly.

French—Boule de Nanteuil, Latour d'Auvergne.

Hybrid Provence—Emmerance, La Volupte, Princess Clementine.

Hybrids, various—Chenedolle, Coup d'Hebe, William Jesse.

2. *Autumn Roses, flowering from July to October.*

Damask, perpetual—Mogador.

Hybrid, perpetual—La Reine, Baronne Prevost, Duchess of Sutherland, Lady Alice Peel, Louis Buonaparte, Madame Laffay, Mrs. Elliot, Geant des Batailles.

Bourbon—Armosa, Coup d'Hebe, George Cuvier, Madame Nevard, Queen, Somnet, Souvenir de Malmaison.

Noisettes—Aimée Vibert.

China—Cramoise Superieure, Madame Brecon, Mrs. Bosanquet, Comte de Paris, Eliza Sauvage.

Tea-scented—Nephethos, Safranot.

The old roses need not be thrown away. Take them up, trim their roots and branches, and plant them in a row in some retired part of the garden: they will make good stocks to bud with better kinds. We shall, at the proper season, describe the method of budding them.

CHRYSANTHEMUMS will now, in the southern counties, be showing flower. The only care they require

will be to continue tying them safely to strong stakes, to prevent the autumn winds blowing them about. As they are gross feeders, watering with liquid manure will cause them to flower finely. Spreading a coating of rotten manure round the stems will assist them much.

PRUNING.—At this season of the year there is not much work for the knife in the amateur garden. In the shrubbery, straggling shoots of both deciduous and evergreen shrubs may be shortened in, to make the bushes more compact. All unripe shoots of the common laurel had better be cut off, as the frost would only destroy them. All dead flower-stems, of course, must be removed as they occur, and late flowering perennials, now chiefly of the aster tribe, be kept well tied up.

THE COTTAGER'S FLOWER-GARDEN.—We have a good deal of anxiety respecting this part of our labours. We earnestly press upon our labouring friends the necessity of losing no time in their flower-gardening operations, even at this season of the year. Every hour's work now will in the spring be found to have been providently bestowed. Enter your garden with a determination to excel, or at least to equal, any labourer's garden in the country. We will not insult your common sense by telling you every week to keep your flower-beds clear of weeds, to have your walks cleanly swept from leaves or litter at all times: these operations, we trust, you need not be reminded of. Hedges, or edgings, you will at all times keep neatly clipped and in good repair. Even where the management of the crops is not so good as it might be, yet, if the garden be clean, neat, and orderly, it will show that your heart is in your garden, and you only want the proper knowledge (which we shall endeavour to give you) to make you a really good gardener, as far as your means and opportunities afford.

BIENNIALS.—Now is a good time to transplant biennial flowers (plants of two years' duration), such as wallflowers, sweet-williams, Canterbury-bells, Brompton and queen stocks, etc., into their final situation, where they are to flower. These, if they have been rightly managed, will be nice short bushy plants. By rightly managed, we mean that they were sown early in June, transplanted when two or three inches high, in beds six inches between each plant; and if they grew too fast, lifted out of the ground once, or even twice, to induce dwarf bushy growth. In this state of growth they are far more likely to stand our winters uninjured, than if they are long-stalked, drawn-up things, made tender by being left too thick in the seed-bed.

EDGINGS FOR BEDS AND WALKS.—No gardens seem finished without edgings. The best in most respects is dwarf-box: it is the easiest kept, requires renewing the most seldom, and, if kept low by constantly clipping at the proper times, is the neatest of all edging. Yet there is an objection—it harbours slugs; and to a cottager is expensive to purchase. Cuttings of this variety of box will grow, and we would hope any gentleman would allow his gardener to give to his industrious poor neighbour a hatch of the clippings of his box-edging. Slugs may be destroyed by frequently watering with lime-water, which is easily made by throwing into any vessel a lump or two of unslaked lime, and, when the water is clear, watering the box-edgings, and wherever you think the slugs are secreted. Edgings of thirt are very neat, but require frequently renewing, and are, like the box-edgings, harbours for slugs. Slates, or thin boards, or even pebbles, may be used as edgings. Any of these are much better than no edgings at all.

ROSES FOR THE COTTAGER.—Every cottage garden should have a few roses in it. The great question is, how is the poor man to procure them? We recommended last week the striking of them by cuttings. If, however, the cottager can spare a few shillings, it will be money well laid out, as, independent of his own pleasure, he may soon make his money by the sale of the flowers. We subjoin a small list of such kinds as will, at least some of them, flower all the year, and the prices of the sorts we recommend are moderate:

Summer Roses.

Provence—Unique.
Moss—Common, Crimson.
Damask—Leda.
White—Blush Hip.
French—Adele Prévost, Enchantress.
Hybrid Provence—Globe White, Duchesse d'Orleans, Beauty of Billiard.

Autumn Roses.

Damask perpetual—Mogador.
Hybrid perpetual—Calliope, Comte de Paris, Lady Fordwick, Duchess of Sutherland, Louis Buonaparte.
Bourbon—Armosa.
China—Crimson superieure, Mrs. Bosanquet.
Tea-scented—Nina.

FLORISTS' FLOWERS.

ALL our remarks and instructions under this head are intended both for amateurs and cottage gardeners; therefore we trust our readers, of both classes, will consider this part of our labours as much addressed to them as to our more experienced brethren. Indeed, to the regular florist we can scarcely hope that our remarks will extend to more than weekly remembrances. We write, not for those who know and

understand their business, but to the forgetful and less-informed,—and to those we trust our instructions will not be altogether in vain.

AURICULA AND POLYANTHUS.—This week we will pay attention more especially to the auricula and polyanthus. We trust those beautiful flowers are, as we before remarked, in their winter quarters. The best situation for them is in a cold frame or pit. Set them upon a stratum of coal ashes, two or three inches thick—or, when expense is no object, upon a stage of boards slightly raised. The plants ought to be within six inches of the glass. Careful attention is required to two points—giving air, and watering; very little, if any, is required of the latter. If the weather is dry, and a good deal of sunshine occurs, a little water will be required: this should be applied in the morning, to allow the surface of the soil in the pots to become dry before night. A fine sunny morning, therefore, should be chosen to water these plants. Of air, abundance should be given. On all fine days, the lights should be drawn entirely off; but should there be the least appearance of rain, let the frames be closed instantly, giving air then either at the back, by propping up the light, or by propping up the lights in the centre of each side—so as to allow a full current of air to the plants. Constant search must be made for slugs, woodlice, and other destructive insects. The auriculas are not so subject to insects inhabiting their leaves as the polyanthuses are. The latter flower is often attacked most injuriously by the red spider. The ravages of this insect are most destructive when they are numerous. To destroy them, mix two pounds of flowers of sulphur amongst soap-water, made by dissolving one pound of soap to five gallons of water, and apply it in a tepid or lukewarm state to every leaf, and especially to its under side. This mixture will not only destroy the living insect it touches, but, as long as it lasts on the leaves, will prevent the attacks of other red spiders. T. APPELEY.

THE WEEK'S KITCHEN-GARDENING.

BRUSSELS SPROUTS.—We may best answer here the inquiry of our correspondent (M. A. J.) by stating that when this vegetable is about eighteen inches high, its top should be cut for table use. By the top being thus removed, the production of sprouts along the stem is promoted. The sprouts should be cut for boiling when as compact as, and about the size of, a walnut.

BEANS.—For early production next spring a plantation of broad beans may be now inserted. A south border, deeply dug, and without any manure added, is the best situation. Marshall's early dwarf prolific is the best kind to plant for this crop; but the early Mazagan and early Lisbon are almost as early in yielding a gathering, and they are cheaper at the seedsman's, as well as more productive. These three varieties attain a height of about four feet if left to themselves; but as they should be topped when about three feet high, and as the rows should run north and south, the rows need not be more than two feet and a half from each other. Dig enough ground for one row, and then insert the beans two inches deep and four inches apart: by thus putting in one row at a time, the ground need not be trampled on, and the looser the soil is about the crops that have to stand through the winter, the better. Although we give these directions for now planting the earliest bean crops, yet we advise the planting not to be made until the commencement of the year, and then with some

kind of shelter; the beans being inserted thick for the purpose of transplanting. One pint of beans will be enough for any number of rows not exceeding in length altogether 84 feet.

CRESS (WATER).—No crop repays the cottager for cultivation more than this, if he has a stream running down a ditch enclosing his garden. This ditch may always be so widened, and the water regulated by a dam at the lowest end, so that the water shall be constantly three or four inches deep. Now is the time for planting them, and we take the following directions from the *Bon Jardinier*. The bottom of the ditch must be beaten quite firm and smooth by the aid of a rammer and the back of the spade. If the bottom of the ditch is not sufficiently moist, a small body of water must be allowed to enter to soften it. The cresses are then to be taken and divided into small sets or cuttings, with roots attached to them; and these thrown over the bottom of the trench at the distance of three or four inches from each other. The cress soon attaches itself to the damp earth; in three or four days the shoots straighten and begin to strike root. At the end of five or six days, a slight dressing of well decomposed cow-dung is to be spread over all the plants, and this pressed down by means of a heavy board, to which a long handle is obliquely fixed. The water is then to be raised to the depth of two or three inches, and never higher. The ditch must thus be replanted an-

nually, and furnishes twelve crops during the season. In the summer the cresses may be gathered every fifteen or twenty days, but less frequently during winter, care being taken that at each gathering at least a third part of the bed is left untouched, so that neither the roots may be exhausted, nor the succeeding gathering delayed. After every cutting, a little decayed cow-dung should be spread over the naked plants, and beaten down by means of the rammer above mentioned. After the water-cresses have been thus treated for a twelvemonth, the manure forms a tolerably thick layer at the bottom of the ditch, and tends to raise its level. To restore it to its original level, all the refuse should be thrown out upon the borders, forming for them a very fertilizing manure. Cress-grounds should always be at a distance from trees, on account of the leaves, which otherwise drive amongst the plants, and require much time to pick out. There are two weeds which, even in the cleanest cress-grounds, can scarcely be kept under: these are the duck-weed and pond-weed (*Zanichellia palustris*), which both multiply so quickly, that unless carefully rooted out, they do great injury to the cresses. The pond-weed may be kept under by careful hand-weeding, and the duck-weed by raising the water, so as to make it float above the cress-plants, when it may be skimmed off.

The cultivation of this very wholesome vegetable, and which is so palatable an accompaniment to our meals, is believed to have been first attempted in 1808 by Mr. Bradbury, a market-gardener, at Northfleet, Springhead, near Gravesend; but since then its cultivation has spread to Rickmansworth, Bayswater, Uxbridge, and other places. From thence, and from more distant places near to a railway station, vast quantities of water-cresses are daily sent to the London market. The cultivators near London consider there are three varieties:—1. The large brown-leaved, which is the best flavoured, and will grow in deeper water than the other two. 2. The small brown-leaved, which is the hardiest. 3. The green-leaved, which, as it roots the most readily, is the most easily cultivated.

CUCUMBERS, to produce their fruit early in February, may be now sown in a hot-bed; but we must warn our readers that they require more care and attention than any other crop forced by the gardener. They will, therefore, count the cost and trouble before they begin, and balance these against the worth of the uncertain crop. We will commence by giving full directions for the preparation of the hot-bed made of stable-dung, of which that made by the best-fed horses is to be preferred. It should be about ten days from the stalls, and without too large a proportion of litter. After being thrown into a heap, of conic form, for five or six days, it must be so turned over, that the inner parts are brought to the outside, the clofs well separated with the fork, the heap formed conical as before, and left for an equal number of days. By this time and treatment the dung in general acquires a sufficient and steady heat; if, however, it is very dry and fresh, it must be moderately moistened, and left for five or six days more. At the time of forming the heap, as well as at every turning, water should be applied if its substance appears at all dry, as a regular state of moisture is of first importance to the obtaining a favourable fermentation. It should remain until the straw in general assumes a dark brown colour, and then be immediately formed into the bed. Leaves or tan may be mixed with advantage, as heat is thereby generated during a greater length of time. In cold, wet, or boisterous weather, the heaps should be covered to a moderate depth with litter.

Place the bed entirely free from the overshadowing of trees, buildings, &c., and having an aspect rather a point eastward of the south. A reed fence, surrounding it on all sides, prevents any reverberation of the wind; an evil which is caused by paling or other solid inclosure. This must be ten feet high to the northward or back part, of a similar height at the sides, but in front only six. The wicket, or gate, must be of sufficient width to admit a loaded wheelbarrow. Fruit may be forced slightly by being trained within it on the southern aspect, for which purpose the fence on that side must be of brick or wood.

To prevent unnecessary labour, this inclosure should be formed as near to the stable as possible. For the reception of the bed, a pit is often dug, six inches deep, if the soil be wet, or eighteen inches or more if dry. In a dry soil and climate this cannot be productive of injury; otherwise it often chills the bed: at the same time it is to be observed, that it is unproductive of benefit, further than that the bed not being so high is easier of access, but gives much additional trouble, both at the time of founding and afterwards, when linings are to be applied.

The place for the bed being determined, a stake should be driven upright at the four corners as a guide for its rectangular construction. The dung must be thoroughly mixed just before it is used, and as carefully separated and spread regularly with the fork, as the bed is formed with it. It is beneficially settled down in every part alike by beating with the fork as the work proceeds, rather than by treading; for if too much compressed, a high degree of heat is raised, but is soon spent: a contrary effect is often caused if the dung is trod to a still greater excess; namely, that no heat at all is produced.

The longest or littery part of the dung should be laid at the bottom of the bed, and the finer fragments of the dung upon the top. If it is not regularly and moderately moist throughout, it should be sprinkled over with water. As the surface on which the bed is founded is usually horizontal, so is the dung laid perfectly parallel with it. Mr. Knight recommends it, on the contrary, to be equally inclined with its foundation, that it may associate well with the form, which he recommends for frames.

The breadth of a bed must always be five feet, and in the depth of winter four and a half feet high when firmly settled; to form it of this size, about twelve barrow-loads of dung are required to a light.

To prevent the sudden changes of temperature in the external air affecting the heat of the bed, coat the sides of the bed with sand, coal-ashes, or earth, to a thickness of two feet.

As the heat declines, linings, or, as they might be properly called, coatings, of hot fermenting dung laid from eighteen to twenty-four inches thick, in proportion to the coldness of the season, etc., all round the bed to the whole of its height; and if the bed is founded in a trench, one equally deep must be dug for the coating, it being of importance to renew the heat as much as possible throughout its whole mass; if, after a while, the temperature again declines, the old coating must be taken away, and a similar one of hot dung applied in its place. As the spring advances, the warmth of the sun will compensate for the decline of that of the bed; but as the nights are generally yet cold, either a moderate coating, about nine or ten inches thick, is required, or the mowings of grass, or even litter, may be laid round the sides with advantage.

The depth of earth, as well as the time and manner of its application, vary considerably; it should never be put on until four or five days after the bed is

formed: before it is applied, the edges of the bed should be raised full eight inches higher than the middle, as from the additional weight of the frame they are sure to sink more and quicker, thereby often causing the earth to crack and injure the roots of the plants.

The roots of plants being liable to injury (root-burning) from an excessive heat in the bed, several plans have been devised to prevent this effect. If the plants in pots are plunged in the earth of the bed, they may be raised an inch or two from the bottom of the holes they are inserted in by means of a brick. But a still more effectual mode is to place them within other pots, rather larger than themselves; a space filled with air being thus interposed between the roots and the source of heat, an effectual security is obtained. To prevent the same injury occurring when the plants are in the earth of the bed, a moderate layer of cow-dung laid between the earth and the fermenting mass, is an efficient precaution, and is much preferable to a similarly-placed layer of turf, which interrupts too much the full benefit of the heat. A plan recommended by Bradley is well worthy of notice. A woven hurdle, somewhat larger than the frame, being placed upon the dung, on this the woodwork of the frame can rest, and the earth is laid within it; thus the whole can be moved together without disturbance. This would especially be of advantage when tanners' bark is employed, which requires occasional stirring to renew its heat in case of emergency, when time cannot be allowed for the bed becoming regular in its heat, before the plants are put in. Besides these precautions, vacancies should be left in the mould, and holes bored with a thick pole into the bed, which must be filled up with hay or dung when the danger is passed.

For ascertaining the internal temperature of the bed, the thermometer is the only certain guide, as it also is for judging of the temperature of the air within the frame. The mode of introducing it into the body of the bed, is to have the thermometer inclosed in a wooden case, of the size and form of an ordinary dibble, which is to be lined with baize, and fitted with a cap of tinned iron, to exclude the exterior temperature. The end which enters the earth is shod with copper full of holes. In conjunction with the thermometer, trying sticks may be employed for occasional observation; these are smooth laths of wood, about

two feet in length, thrust into different parts of the bed, which being drawn out and grasped quickly, afford a rough estimate of the heat of the bed.

The small extent of the frame, and the rapid spoiling of the air within it by dung's fumes, render its frequent renewal necessary. To effect this, the common practice is to raise the glasses in proportionate heights, according to the state of the air; and to prevent any injury arising when necessarily admitted during inclement weather, mats are hung over the opening; but notwithstanding these precautions, the supply of air can seldom be regular; hence, and from sudden chills, the plants are often checked, and sometimes essentially injured. It may be remarked here, that raw, foggy days, if anything, are more unfavourable than those that are frosty for the admission of air. A complete remedy for all these difficulties is afforded by a plan, which succeeds on the principle that warm air ascends, and simply consists of a pipe passed through the body of the bed, and one end communicating with the outside air, the other opening into the frame, at one of the top corners of which a hole must be made; the heated air of the frame will constantly be issuing from this hole, and its place supplied by the air which rises through the pipe. A pipe of lead may be used, about two or three inches in diameter, bent nearly at a right angle and each limb being three feet long, one of these to be placed horizontally, as the bed is forming, with its mouth extending into the open air, that of the other end opening into the frame. A cap should be fitted to the first, and by a slit on its under side, the quantity of air admitted can be regulated.—*Modern Gardener's Dictionary.*

We must defer our directions for attending to the seedlings until next week.

HERBS—plant, such as fennel, mint, pennyroyal, sage, savory, tansy, tarragon, and thyme. Two or three plants of each will be enough for a small family, and every housewife knows their great value, not only to give a relish to her cookery, but in making teas for the sick members of a household. No particular directions need be given for their cultivation, for the rooted plants, which must now be obtained, grow very readily. We need only observe that in a light, well-drained, and not over-rich soil, they all have the highest flavour.

MISCELLANEOUS INFORMATION.

MRS. DAVIS GILBERT; OR, WHAT WE CAN DO FOR OTHERS.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

THE late Mrs. Davis Gilbert, of Eastbourne, was ever a warm and consistent friend of cottage gardens. She was well aware that on the best produce being procured from its garden, much of the comforts of a cottage depends. As I had occasion in another place to remark (*Farmer's Almanack*, vol. ii. p. 239), that great object she sought to accomplish by a variety of excellent and successful efforts, such as the more extensive introduction of deeper digging, or forking; by allotments to several hundred labouring tenants; by the introduction of self-supporting agricultural schools; by the collection, as a manure, of the cottage sewage; and by the careful collection and storing (in a tank) of rain-water. To some other of these invaluable efforts I may on future occasions endeavour to draw the attention of the readers of this valuable Journal.

I recently made some observations on an easy mode of collecting and employing the sewage of the house, and in my present communication I will confine myself to a few remarks on another of my late friend's objects—the collection of rain-water.* I do this not only because I am aware of the superior value of rain-water for a variety of culinary and garden purposes, but because I feel that if the amount of rain annually falling in England was better understood, it would induce the erection of cottages in better sites, and with larger gardens, than is now convenient, where well-water is scarce. As I have remarked in another work (*Rural Spelling-Book*, p. 22), it is well known that some waters are called "hard," and are unfitted for the purposes of washing and brewing. This is owing to such waters holding, dissolved in them, either

* My late friend died, April 26, 1845, in her sixty-ninth year; a surviving friend, who is still spared to follow her noble example, and to befriend the spade and the hoe, very truly remarked to me on that occasion, "In her the cottager and the cottage garden have indeed lost a dear friend!"

chalk or gypsum (carbonate of lime, and sulphate of lime), either of which, by decomposing, renders more expensive the use of the soap, and materially retards the extraction of the sugary matter from malt. Rain-water, from the total absence of these two substances, is the "softest" and best of all water for washing, brewing, and gardening; and if proper care is taken in its collection and storing in tanks, no family need be without an abundant supply of it; for it has been determined, that sufficient rain falls on every house in England for the use of its inhabitants. Although the fall varies in amount in different districts, yet the average annual depth which falls in England is about 24 inches, or more than 12 gallons upon every square foot of the roof (a gallon contains 277·274 inches); so that, supposing the roof to be 15 feet square only, more than 2800 gallons of water, or about 8 gallons per day, fall upon it in rain every year.

It would tend also to the general use of rain-water, if an easy plan, which I have found very useful in Surrey, was adopted, of making the rain-water pass through some white sand in its way to the tank. By this means, all the leaves, soot, and other mechanically suspended matters, are removed, and the rain-water, in consequence, keeps sweet for any length of time.

COTTAGE AND ALLOTMENT GARDENING.

(No. 3.)

BY THE EDITOR.

BONE MANURE.—"What good can there be in an old bone?" is a question that even now, occasionally, is heard from the lips of those who should have long since acquired the knowledge which would have prevented the question being put. As it is a question sometimes heard from the well-educated, we may be sure that our cottage friends may be readily excused for a similar inquiry. We will tell them, therefore, what good there is in an old bone.

They need be no more than reminded that all their own flesh, blood, and bones, are formed out of the food they digest. Now, as chief constituent of that flesh, blood, and bones, is a peculiar substance called phosphate of lime; and this phosphate of lime is found in all plants—indeed, plants cannot grow healthily without getting it by means of their roots from the soil. To supply the growth and the waste constantly going on of our flesh, blood, and bones, and consequently of the phosphate of lime which they contain, we eat certain plants; the plants derive, among other things, their phosphate of lime from the earth in which they grow, and to keep up a supply of that phosphate of lime in the earth ready for the roots to take in, we apply manures containing that phosphate. Now "an old bone" contains about half its weight of that phosphate, and this we think will explain why, when it is used as a manure, there is found to be a great deal of "good" in it. It is quite true that if we bury an old bone it will remain almost unaltered for years, but if we break it into small pieces it decays much sooner; and if put round the roots of cabbages, will soon make them grow more fine and vigorously. Cabbages, however, are not the only garden vegetables benefited by bone manure; for, as we have just said, phosphate of lime is one of the most constant constituents of all plants. Of this phosphate, therefore, the soil is deprived by every crop it bears, and to restore this phosphate to the soil is an object with every cultivator. It was long since shown by chemists, that phosphate of lime is the chief ingredient in all bones, and, consequently, these by degrees have become one of the

most extensively-used manures. In 1821, the declared value of bones imported was no more than £15,898 12s. 11d., but annually increasing, they had reached in 1837 to £254,600, and the quantity now used yearly probably exceeds in value half a million of sovereigns.

In the *Gardener's Almanack* for 1845, will be found analyses of all the bones usually employed for manure, and it will be there seen that those of the sheep, ox, and horse, are rich in phosphate of lime in the following proportions:—In every 100lbs. of sheeps' bones there are 70 lbs. of phosphate of lime; in 100 lbs. of horses' bones, 68 of that phosphate; and in the same quantity of ox bones, 55 lbs.

Now, as phosphate of lime is insoluble in water, and even bone-dust is slow in decaying, it was suggested that by dissolving it in a strong acid, super-phosphate of lime, a substance soluble in water, would be formed, and also all the other constituents of the bone be presented to the roots of the crop in a most available form. This process is said to have been first adopted by Mr. Fleming, of Borrochan, N.B., in the year 1841. He employed muriatic acid (spirit of salt) to dissolve the bones, and the result of his experiments, per acre, on turnips and potatoes, was as follows:

	Swede Turnips.	Potatoes.
	ton. cwt.	ton. cwt.
Bones (16 tons, no acid) . .	14 17	9 15
Bones (10 tons, with acid) . .	18 11	12 15

Subsequent experiments have demonstrated that oil of vitriol (sulphuric acid) can be used much more advantageously for dissolving bones, than the muriatic acid, and for reasons thus epitomised by Mr. W. C. Spooner, in his recently-published "Treatise on Manures."—"Sulphuric acid is stronger, cheaper, has a greater specific gravity, and therefore is not so bulky; and contains much less water. On mixing it with water a much higher temperature is obtained, which conduces to the dissolving of the bones. But above all, we find that in the trials which have been made, bones dissolved in muriatic acid have been found somewhat less beneficial than others dissolved in sulphuric acid." Mr. Spooner's conclusions, after lengthened experience, are—

1. That super-phosphate of lime is the essential manure for turnips, and particularly for Swedes. (We can add, that it is most excellent for every kind of cabbage, brocoli, and cauliflower.) That with it alone a good crop can be raised; but without it the turnip will not thrive, however rich the manure may otherwise be.

2. In preparing the mixture, the bones should be in as fine a state as possible.

3. That sulphuric acid, from its greater strength and cheapness, is preferable to muriatic acid.

4. That water, in the proportion of one-half the weight of the acid, should be first sprinkled over the bones.

5. The proportion of sulphuric acid most economical to employ should not be less than one-third, nor more than one-half the weight of the bones, and that probably the medium between these two quantities is most advantageous.

6. That the mixture can be applied either with the addition of a considerable quantity of water, or with ashes, by means of an ordinary drill. That though

mixed with water it may be more speedy in its effects, yet when mixed with ashes it can be more conveniently applied, and has the advantage of admitting the addition of a large quantity of ashes.

7. That vitrified bones may be used either alone or with other manures, and that when the latter are at hand, it is more advantageous to use the former in combination with them.

Mr. Spooner remarks that, in his experiments with superphosphate of lime applied at the time of sowing seeds, these invariably sprouted more quickly than other seeds sown without the addition of the phosphate. It seems to have the power generally of hastening the progress of vegetation; and the following from Mr. R. White shows its effect upon the rose-tree.

"In the autumn of 1845 I transplanted about twenty rose-trees; and in consequence of seeing this substance mentioned as one to be used with advantage in such a case, I tried the experiment on eight out of that number, by sprinkling about a handful on and about the roots at the time of planting. Early in March of this year the difference was very perceptible; the eight plants in question were in leaf, and quite as forward as those which had not been removed, while the remainder (with one exception) had not then started into growth. I think this may be taken as a proof that superphosphate of lime has a beneficial influence in causing the more ready formation of roots."—(*Gardener's Chronicle*.)

Bone manure, whether merely ground bones, or those dissolved in sulphuric acid, is not only beneficial to cabbages and turnips, but to all garden crops and flowers. We have noticed very great benefits ourselves from applying it to peas, beans, asparagus, and strawberries.

MY FLOWERS.

(No. 1.)

WORKS—especially periodicals—addressed solely to man, lose half their charm, and much of their usefulness. There are ladies of the creation as well as lords, and in this our bright and happy land, enlightened by a far more glorious sun than that which shines on its material structure, woman takes her share in every department where bodily strength is not required, and is the delighted partner of all her husband's, or father's, or brother's tastes and intellectual enjoyments. A periodical, to be *perfect*, needs the delicate tinting imparted by a lady's hand, so that it may not be laid by on the dusty shelf of the husband, but take its place on the work-table of the wife; and I will venture to say, much of its success may depend upon the approbation of those, whose influence upon society, though perhaps not glaringly apparent, is deeply and intensely felt.

I address myself, therefore, exclusively to the wives and daughters of those gentlemen who patronize "The Cottage Gardener," and through them, to the wives and daughters of their humble neighbours, whose enjoyment of flowers is usually greater than might be expected in their particular circumstances. It will give me great pleasure to impart my country feelings and floricultural experience to "my sisters;" and should I be the means of awakening a dormant taste, or increasing the growing fancy of a single individual, I shall feel myself abundantly recompensed.

A flower-garden is a great resource to a lady. We have, in our rather limited sphere, a good deal to suffer, and a good deal to make the best of, and, in each case, our minds seem healed and mollified by the sight and

smell of our gay and fragrant parterres. A flower, too, is a sermon—it preaches to our hearts and minds—it speaks to us loudly and powerfully of the tender love of our and its Creator—and it declares impressively also, this solemn and salutary truth, "man is as a flower of the field." We are taught, too, how wise, as well as how pleasant it is, to look for all we need spiritually and temporally from our heavenly Father.—"How much more shall he clothe you, oh ye of little faith." Thus in every way our garden is a kind of benefactor—it gives us moral health and physical health—pleasure and profit—recollection, and sometimes a blessed forgetfulness. I can truly say, that few moments are more exhilarating than that in which I unfold and arrange my large checked apron—plunge my hands into its ample pockets to find my knife, scissors, pack-thread, and old gloves, all of which you are sure to lose or mislay, if you do not keep them there; and snatching up my basket, rake, and trowel, hurry forth into my peaceful garden. Some of my young readers may think this a strange time of year to begin a discourse upon flower-gardening, but we shall have plenty of matter to discuss during the dead months of winter, preparatory to the busy time of spring, and we may be pleased to find that any suggestions offered can be acted upon almost immediately, or, as soon as the year commences, instead of having to wait till a whole season, perhaps, comes round.

October is a busy month in many ways. A garden must be "packed up" for its winter sleep, and laid by in neat, lady-like order. Nothing looks more deplorable than plants left straggling on the borders, with their dead leaves and stems decayed and black; sticks left in disorder, with the remains of sweet peas entangled round them, and roses and honey-suckles bearing the black comfortless relics of their beautiful summer bloom. Every straggling leaf and stem must be cut off, and the plant neatly trimmed. Pick off all dead buds and seed pods, that are left after the floricultural harvest; dig in the old plants of mignonette and other annuals that may yet remain, when you arrange the beds, because many strong young plants will spring from self-sown seed in autumn; and, therefore, leave no means untried to acquire them. Loosen the earth with a light prong, or hand-fork, to enable the frost to enter, to kill insects, and the snow to enrich the soil.—Remember "the treasures of the hail." Collect all the refuse of the garden; the dead leaves, &c. and make a heap of them in a retired nook, where they will, in time, become a rich supply of leaf mould, so useful to potted plants. It would be better even to endure the unsightly object, than to let the contents of your wheelbarrows be thrown away. Nothing should be thrown away; all is good in its time and place; and even our flowers will help to support themselves, thus teaching another useful lesson upon the well-regulated and listening mind. These are some of our October duties, and this enchanting season, hitherto, renders our labour light.

ROSA.

BEES.

As every one is interested in the economy of Bees; as their honey and wax are acceptable in all households; and as they are a source of great profit to the Cottager, we shall give a series of essays on their management, so soon as we can meet with a practical bee-keeper, on whom we can rely, willing to undertake the task. In the mean time we readily give insertion to the following which has been sent to us by a correspondent.

"RULE 1.—Never kill your Bees.

"RULE 2.—Never allow your Bees to swarm.

"Place an old stock of Bees in a common straw hive on the middle of a board large enough to contain three hives, and on each side of the old stock place a wooden box, about seven inches square outside and six inches high, (or any other size you may think proper,) or straw hives with wooden tops. The boards forming the wooden boxes may be made out of old packing-cases. Each side box should have glass windows with shutters.

"On the top of each of the side boxes there should be a hole two inches in diameter, with a perforated plate of zinc to slide over it and a cork to fit it. These small holes are for the purpose of ventilating the side hives, thereby preventing the Queen from laying her eggs in them. When the Bees fill the holes of the slide, exchanging this for another of the same kind. The side box should not be aired until the Bees have fairly taken to it.

"The board on which the hives are placed should be so prepared with passages that the three hives may be united or disunited at pleasure by means of slides made of zinc. As soon as the Bees are likely to swarm, open the passage between the middle hive and one at the side, and force the Bees to pass through the latter by stopping up the mouth of the former. When the Bees have filled one side box with honey, let them into the other side box, and remove the first, (now fit for use) in the middle of a fine hot day, by means of a plate of sheet iron, to any convenient place in your garden. The Bees will return to the parent hive, and the owners of the Bees may take possession of the deserted hive."

In speaking of the profitableness of Bees we may add that the profit is not trivial, for we have known more than one cottager pay his rent from their produce.

TO PRESERVE POTATOES.

A FRIEND has sent us a printed handbill relative to "The Potato Disease," from which we extract the following directions for preserving potatoes in a state fit for feeding cattle, pigs, and other animals.

Boil the small or other diseased potatoes, and then beat them down into a cask, strewing salt at the same until quite full.

Preserve the potatoes *carefully from the air*, by filling every joint and crack with lime putty, pitch, rosin, or grease. Place the cask in a dry cool situation.

Potatoes will keep sweet in this way for many months.

HARDY PLANTS LATELY MADE KNOWN AND WORTH CULTIVATING.

REEVE'S MUSCADINE GRAPE.—Imported from the Cape of Good Hope by John Reeves, Esq. Bunch large, broad-shouldered; stalk thick; pedicels (stalks

of berries) short, stiff. Berries oval; skin yellowish white, rather thick; pulp melting, juicy, and rich. A good grape, ripening quite as early as the Black Hamburgh under similar circumstances.—(*Hort. Society's Journal*, iii. 308.)

LUPINUS AFFINIS (Allied Lupine).—Mr. Hartweg sent this to England from California, where he found it in 1847, growing in the woods near Monterey. The flowers are a bright deep blue, with a broad white spot in the middle of the largest flower leaf or standard. Height six inches. May be grown in any good garden-soil like the common lupine; blooms abundantly, and lasts long in flower.—(*Ibid.*)

HINTS FROM OUR CONTEMPORARIES.

THRIFT EDGING.—The close tufted evergreen foliage of Thrift makes it peculiarly suitable as an edging for flower borders, especially as its flowers are ornamental and are abundant during several of the summer months. There is a bright rose-coloured variety which should be preferred for this purpose. The principal objection to this plant, as an edging, is that it spreads rather too readily over the surface, so that the edging soon becomes too wide. Replanting is the only proper mode of correcting this excessive outspread, for severe cutting back to a narrow width often proves very detrimental to the plants. In planting Thrift as an edging, the soil should be dug and broken fine and then be trodden and beaten down firm; a line is then stretched along just where the edging is needed, and the soil is cut down by the spade even with this line, so that the top surface is smooth and horizontal, and the side face almost perpendicular. The plants of Thrift are then pulled asunder into single heads or crowns, and these are planted along the line cut out as above described, in doing which, the tops of the plants must be kept quite level, each about two inches above the surface. The roots are to be firmly fixed in the soil, and the plants about two inches apart from each other. The part of the plant should not be shortened, as fibrous roots will be produced along the whole length of the woody portion.—(*Horticultural Magazine*.)

CELERY SHOW, held at Edward Brown's, Dun-street, Sheffield, October 2, 1848 :

Growers.	lb. oz.	Growers.	lb. oz.
Thomas Smith . . .	18 12	Charles Lingard . . .	12 8
Wm. Grayson . . .	16 4	Joseph Booth . . .	12 0
John Nutt	15 8	John Parkin	11 12
Henry Brown . . .	14 8	Edward Brown . . .	10 8
Wm. Brown	13 12	Edward Jennett . . .	10 1
Samuel Bray . . .	13 8	Henry Pashley . . .	9 0
Henry Rogers . . .	13 0		

Sheffield Times.

(Many of our readers will be surprised that a single stick of celery can be grown to such weights as the above. We should like to know the names of the varieties exhibited, and what are the characteristics of excellence the judges require in celery.)

TO CORRESPONDENTS.

T. M. (Reigate).—The suggestion shall not be lost sight of in our "heading" for another year.

Again we must return generally thanks to our CLERICAL AND OTHER FRIENDS for their kind wishes and aid. At present we have neither time nor space to do more.

Rev. J. H. (Berks).—We have to thank our friend for his hint, "not to presume too much on the previous knowledge of our readers;" and we can assure him it is our constant effort to be very plain and explicit.

M. SAUL in our next, and we shall be glad to hear from him again.

The queries from numerous other Correspondents will be answered in our next. Our arrangements for publication in time for forwarding into the country by the Booksellers' parcels render it necessary for us to have any question ten days before the answer can appear with certainty.

WEEKLY CALENDAR.

M D	W D	OCTOBER 26—NOV. 1, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun	Day of Year.
26	Th	Whitethorn leaves fall.	Late Golden-rod.	46 a 6	43 a 4	5 47	29	15 57	300
27	F	Elm leaves fall.	Bundle-flowered Aster.	47	41	sets.	New.	16 2	301
28	S	St. SIMON AND St. JUDE.	Late-flwg. Chrysanthem.	49	39	5 a 42	1	16 6	302
29	SUN	19 SUNDAY AFTER TRINITY.	Green-flowd. Narcissus.	51	37	6 14	2	16 10	303
30	M	Red currant leafless.	Dunghill Agaric.	53	35	6 52	3	16 13	304
31	Tu	ALL HALLOW EVEN.	Fennel-leaved Coreopsis	54	33	7 36	4	16 15	305
1	W	ALL SAINTS.	Laurestinus.	58	30	8 25	5	16 16	306

ST. SIMON AND ST. JUDE.—These two Apostles are commemorated on the 28th of this month. SIMON, for his zeal, was called Zelotes (Luke vi. 15), and that zeal speedily led to his crucifixion. ST. JUDE was a relative of our Lord. (Matt. xiii. 55.) His Epistle, addressed to Christians generally, is in our Bible. He was cruelly put to death by the Magi.

ALL HALLOW EVEN, or HALLOW E'EN, as it is called in North Britain, was in days gone by the anniversary of numerous incantations and charms then used by maidens who sought to know the when and with whom "would wedded life begin." It was a night on which our superstitious forefathers thought the witches, and other agents of evil, were especially on the alert.

INSECTS.—At the end of October, and early in November, the Lime-looper, or Mottled Umbre

PHENOMENA OF THE SEASON.—There are very few hips and haws this year; and this, according to an old adage—respected even by Lord Bacon—should portend a mild winter; but we have never observed any truth in the omen. Abundance of these fruits of the dog rose and whitethorn can only intimate, that during their time of flowering (June and July) the season was dry, and favourable to the impregnation or setting of the fruit. In the present year these months were most wet and ungenial, and hence the scantiness of those wild fruits. The extreme wetness of the summer, by so thoroughly wetting and chilling the earth, would rather justify the expectation of an early and severe winter.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.
26	Cloudy.	Fine.	Fine.	Cloudy.	Cloudy.	Cloudy.	Cloudy.
27	Stormy.	Fine.		Cloudy.	Fine.	Fine.	Fine.
28	Rain.	Cloudy.		Fine.	Fine.	Rain.	Cloudy.
29	Cloudy.	Fine.	No Returns.	Cloudy.	Fine.	Cloudy.	Fine.
30	Rain.	Fine.		Showery	Fine.	Cloudy.	Cloudy.
31	Cloudy.	Fine.		Fine.	Cloudy.	Cloudy.	Cloudy.
1	Rain.	Fine.		Cloudy.	Fine.	Fine.	Fine.



guish this, it is called the Lime-looper—its favourite food being the leaves of the Lime, or Lindee-tree. It is almost equally fond of the leaves of the apple, and in some years destroys the hopes of the orchardist by the extent of its ravages. As a single female of this moth will lay 200 eggs, a very few females may raise a progeny sufficient for stripping a whole orchard, especially as the caterpillars are not easily detected until full-grown, and are usually first noticed by the extent to which they have destroyed the leaves. The moths come out of the earth, where they have passed through their pupæ or chrysalis state; and as they are without wings, they may be prevented creeping up the apple-trees by smearing tar around the bottom of their stems. This moth is called the Mottled Umbre, because the upper wings are mottled with a reddish-brown colour, like Umbre. They are sprinkled over with many black dots. From the front edge of each upper wing, and from near the tip, a wavy line passes among those dots across to the back edge of the wing. Near to this line, and near the centre of the wing, is a black dot, larger than the other dots. There is a similar black dot in the centre of the under wings, which are a grayish-white dotted with brown. The caterpillars are hatched in April, and are full-grown in May; they are reddish-brown, with a yellow line on each side, and a red spot on each of their joints or segments. The caterpillars retire into the earth at the end of May, where they change into a brownish-red chrysalis, remaining, as already stated, until October or November, when the moth comes forth from them.

OUR observations on a recent occasion (p. 11) were confined to the storing and preservation of kitchen-garden roots, and we will here modify one statement we then made, before we proceed to offer some remarks upon fruit-storing. We directed that the beetroot should be treated the same as the carrot and the parsnip, preparatory to storing; but there must be this difference—no part of the beetroot should be cut away with its leaves, otherwise, when boiled, all its beautiful crimson colour will be extracted by the water.

The objects to be attained in the preservation of fruit, are freedom from decay and from shriveling. Now decay, or putrefaction, can never occur at all at a temperature below that at which water freezes; and at temperatures warmer than that, it should be borne in mind, that the greater the cold, the less apt will anything animal or vegetable be liable to decay. Hence meat or fruit, put into an ice-house, will keep good as long as any ice remains there. The fruit-room, therefore, should be kept as cold as possible,

and the cottager who would preserve his apples and pears through the winter, or at least as long as their several natures will permit, should store them in a cool out-house, or in a room on the north side of his cottage, and where no fire is usually lighted.

Decay occurs very slowly if the air is shut out. Thus, we have eaten beef and fish that had been to the East Indies and back in closely soldered tin cases—and the beef and the fish (salmon) were as good as they were when put into the tin cases nearly twelve months before. We cannot be at the annual expense of soldering down our fruit in tin cases, but we can pack them away in casks and boxes, between layers of dry sand—or we can put them into drawers, each apple or pear of the most choice dessert kinds being first wrapped in whitey-brown paper.

We once thought that dryness was necessary for the long-keeping of fruit; but this is certainly not so, provided the moisture in the air is not stagnant, as it is in most underground places. A damp cellar, on

account of its stagnant air, is about the worst of all places for fruit-keeping. That moi-ture—if the air is kept in motion, so as not to let the surface of the fruit be constantly damp and surrounded by its own fumes or exhalations—does not cause decay, is shown by many facts. Thus an apple left upon the tree, or that has fallen into a box-edging, will remain sound and uninjured long after the fruit of our store-room is shrivelled or decayed, though that apple has been exposed to all the rains and snows and vicissitudes of winter. Then, again, it is recorded of a large fruit-grower, that he stored his apples upon hurdles, and occasionally threw over them buckets of water; yet he was well known as a successful preserver of his fruit.

Shriveling arises from the drying away or evaporation of the watery contents of the fruit. Now this drying away goes on fast just in proportion to the fruit's exposure to warmth and air. The means, therefore, directed to be adopted, to keep fruit from decaying, will also preserve it from shriveling.

We may observe of shell-fruit, filberts and walnuts, that moisture and coldness are their best preservatives. Their own shells exclude the air; the cold keeps them from growing, and the moisture prevents their drying and shriveling. It matters not to them, as their shells exclude the air, how stagnant this may be. Therefore the best of all modes of preserving them is to put them

in an uncovered, unglazed earthenware pan into a damp cellar. By this mode we keep both filberts and walnuts the whole year round, and so fresh that the skin peels from each kernel long after new filberts and walnuts have arrived, nearly as easily as when first they were gathered from the tree.

We may observe, in connection with fruit-storing, that bruises of the fruit, even the most slight, are to be very carefully avoided; for wherever a bruise occurs decay, sooner or later, follows. Instead, therefore, of pouring apples or pears into heaps, and so unavoidably battering them against each other, they should be placed gently and singly upon the floor of a room, and after they have remained there for a day or two, be wiped dry and stored away. Fruit stored in sand should not be kept in it down to the very time it is required for eating, for exposure to light and air is necessary for the production of the fruit's full flavour. A fortnight's consumption should always be kept out of the sand, and each day some should be taken out from the sand to supply the places of those that have on that day been eaten.

To enable us to make room for arrears of contributions, we purpose giving occasionally a double number, for which, as in the present instance, we shall make no extra charge.

THE WEEK'S FRUIT-GARDENING.

SELECT LISTS OF APPLES.—We will now proceed to give some useful lists of fruits adapted to the cottager and amateur. We must at the same time observe, that such lists, however carefully the kinds may be selected, cannot be supposed to rule the cultivation of any district: we merely advise a *trial* of the kinds here enumerated. We have had experience of most of them for some twenty years, and we have the concurring testimony of many experienced persons in favour of the majority of kinds recommended. After all, it must be admitted that many valuable fruits exist totally unknown to the gardening world, and which never yet found their way into the nurseryman's catalogue. Another point, above all, must by no means be lost sight of, for we do consider it the *main* point. Some kinds like clay soils; some will answer well in sandy soils; and others will succeed in peat, provided it is well drained.

Every cultivator, therefore, should keep an attentive eye on the kinds which thrive in his district; or, at least, on a soil similar to that of his own garden. Whenever a kind fails, the cottager should not stand speculating or surmising: let him immediately take steps to graft a kind which *will* answer. By a little inquiry, he will soon be able to learn what kinds have *paid* best for half a century back, and such may be grafted at once at the proper period.

We may here be permitted to digress so far as to observe, that many kinds, such as the ribston-pippin, the hawthornden, etc., will frequently become renewed if grafted on old stocks, which, although not successful with other kinds, have, notwithstanding, a sound and clear stem. We have now a hawthornden branch

of considerable size, which was some years since grafted on the lower part of a French crab, and which is totally free from canker, and produces abundantly every year. We strongly suspect that the leaves of the Hick's-fancy, of which the other portion of the tree is composed, have exercised a healthy influence on the hawthornden. For, be it remarked, the hawthornden is cankered and worn out in all other parts of the garden.

With these preliminary remarks we proceed to recommend a few sorts to the attention of both amateur and cottager. In making the selection, we have been guided by the following principle—following, also, nearly the order in which they stand as to their period of becoming fit for use:

First—Soundness of constitution;

Secondly—Free bearing;

Thirdly—Useful kinds.

Kitchen Apples.

KESWICK CODLING.—This, on ordinary soils, may be reckoned our very best *early* dumpling or baking-apple. Healthy in constitution, and a great bearer, it is not excelled by any in July and August.

MANKS CODLING.—In use from July to February; an excellent bearer; one of the most profitable apples in the kingdom. It bears freely on the young shoots, and therefore requires manuring occasionally.

BLenheim PIPPIN.—November to February; a very useful fruit, and growing vigorously; would answer as a hedge-row apple.

DUMCLOW'S SEEDLING.—A noble fruit, cream-coloured. It retains its briskness and firmness until

April. Of a strong, upright growth, it would doubtless answer well in hedge-rows.

MINSHULL CRAB.—A very strong-growing tree; fruit in use from October until February; a good sauce-apple. The tree is too robust for small kitchen-gardens; would answer in orchards.

BEDFORDSHIRE FOUNOLING.—Very large and handsome; in use from November to March.

NORFOLK BEAUFIN.—A very large and sound fruit; will keep until June. This would be suitable for hedge-rows.

HAWTHORNDEN.—Too well known to need description. This tree is, however, very liable to canker; we would recommend it for grafting on large and healthy trees.

HEREFORDSHIRE PEARMAIN.—An old, but very useful apple; in use from October until March. This would probably answer in hedge-rows.

KING OF PIPPINS.—This is equally adapted for the table or the kitchen. It is a most healthy tree, a great bearer, and every way deserving a far more extended cultivation. We would try it in the hedge-row, its growth being upright—which circumstance we consider an essential in hedge-culture.

JOHN-APPLE, or NORTHERN-GREENING.—We have no apple in cultivation superior to this for kitchen purposes. A hardy and healthy tree, a good bearer, the fruit a good size, and remaining in use from November until May. It may, we think, be fairly considered the best baking and sauce-apple in our catalogues. It is a capital kind for the hedge-row also. We are inclined to think that it loves a humid atmosphere for it is extensively cultivated in our north-western counties—more especially Lancashire and Cheshire.

Table or Dessert-apples.

EARLY HARVEST.—This is a nice early apple, as the name implies. It will ripen in the end of July, in fine seasons; and possesses a crisp, yet tender flesh.

EARLY RED-MARGARET.—A very good summer-fruit: ripens about the beginning of August; and we should say a superior bearer.

KERRY PIPPIN.—Of all our Autumnal fruits, this is the best, both as regards bearing-properties and flavour. It forms, too, a very sound and healthy tree. No amateur's or cottager's garden should be without a couple of them. Fruit middle-sized, somewhat oval, frequently possessing a quince-stalk; flesh crisp and vinous, and of a yellow tinge. In use from the middle of August until the end of September.

HICK'S-FANCY, or EARLY NONPAREIL.—A very good bearer, brisk juice, and the tree grows very compact; in use from October to the end of December.

PITMASTON NONPAREIL.—A middle-sized fruit,

rather flattened at top; one of the greatest bearers with which we are acquainted. This we call everybody's apple: no cottage-garden should be without a couple. We have a tree which we have never known fail of a good crop for eighteen years: this can be said of few apples. In use from October until March.

PEARSON'S PLATE.—A handsome and truly useful little fruit. In use from November until April.

RIBSTON PIPPIN.—We here need no lengthened description; this kind is known to everybody. It has but one fault—an inclination to canker.

ROSS NONPAREIL.—A handsome little russet-coated fruit; frequently tinged with crimson next the sun, although of the class of russets. This has what is termed the fenouillet flavour—that is to say, a powerful aromatic taste. It grows in a compact little tree, and is in use from November until February.

OLD NONPAREIL.—A well-known and highly-esteemed fruit as to quality, but apt to canker. It should have a good situation. We would not, however, advise the cottager to plant this kind. In use from November to May, and may be fairly termed the best dessert-apple in the kingdom in January and February, taking briskness, tenderness of texture, and depth of flavour into consideration.

LAMB-ABBEY PEARMAIN.—This is an extraordinary kind; if the pitmaston has a rival in point of sure-bearing, this is the fruit. Fruit green, middle-sized, rather oval, is particularly firm, and will continue in use from December until May, or even June. Every cottager should possess this tree. It grows compact, and the fruit generally in clusters, like bunches of nuts.

STURMER PIPPIN.—A valuable, late apple, of the ribston-pippin character; will keep until June.

We here, for the present, close our lists of apples. Our aim has been to pick out a very few sorts which may be relied on. Nothing is easier than to extend such lists; ample materials are at hand for the purpose. We think, however, that it is far better to recommend those only which we have long known and proved. We consider a large collection of kinds a very great evil, especially to limited gardens. The cottager, above all, should look to profit, which must of course be sought for in sure bearers.

GENERAL WORK.—As weekly calendrical advice, we would again repeat, that pruning of all kinds may be proceeded with. Any remaining leaves may be brushed off with a switch of twigs. Let planting also be attended to, according to former advice; any late fruit still out should be housed without delay. It can receive no benefit out-doors after this period.

We shall seek occasion in future, when calendrical matters do not press, to give condensed lists, which may be relied on, of the other fruits adapted to the amateur and the cottager.

R. ERRINGTON.

THE WEEK'S FLOWER-GARDENING.

FURNISHING BEDS. The mode of supplying beds of flowers now, is very different to what it was twenty years ago. The mixed flower-garden where perennials (plants lasting for several years), biennials, annuals, (plants required to be sown every year), roses, bulbs, and so forth, were all grown together, is but seldom seen now, at least, to any extent. Yet the old method had its advantages, inasmuch as there was always during the floral months* a fair sprinkling of flowers in every bed, which, even yet, in some places

* Floral months—May, June, July, August, and September.

is considered advantageous enough to induce the proprietors to continue the mixed mode. However, by far the greater number of cultivators of flowers now adopt the mode of congregating in masses each kind of flower; that is, to have a bed entirely filled with verbenas, another bed with petunias; a third with calceolarias; a fourth with crimson dwarf China roses, and so on. These, when well managed, certainly make a most splendid display of floral beauty. The great objection to this mode of furnishing the beds is, that at some times of the year the ground is bare. To

obviate this objection is our present purpose. The way to do it is to grow yearly a sufficient number of dwarf evergreen shrubs in pots, and as the flowering plants at this time of the year decay, to have them removed and the ground well digged, and then their places supplied by the requisite number of evergreens in pots being plunged in the beds; continue this operation as the flowers decay till every bed is furnished. We shall then have an evergreen flower-garden during the dreary winter months, which every one must allow will be more pleasing than naked beds.

BULBOUS FLOWERS. Where beds of bulbs are cultivated, now is the time to plant them, and in those beds, of course, evergreens in pots cannot be placed; yet, even here, a tasteful cultivator will find something with which to hide the bare earth. For beds of yellow and blue crocuses, small flints are a good covering—the crocuses will come up in the interstices, and the contrast of the white flints and yellow and purple flowers will be pleasing. Other bulb beds may be covered with green moss, which will protect the plants from frost. The moss may easily be fastened down with small sticks and hooked pegs. These beds if judiciously intermixed, will have a very good effect.

FORCING ROSES. If Roses are desired early in the year now is the time to prepare the house, or pit, for them. Whichever is used for this purpose, let it be well cleaned out, the walls whitewashed, and the house, or pit, filled with tobacco smoke, to destroy any insects that may be harboured therein. The plants, if in their proper state for forcing, will have been potted the year before. Examine the pots by turning the balls of earth out of the pots to see if there are any worms in them, and if the drainage is open. Set these matters right, replace the ball in the pot, and put a little fresh compost made of loam and dung in equal parts, on the surface of the pots. Give a gentle watering, and then the plants are ready to be placed in the forcing-house. The temperature for the first fortnight should not exceed fifty-five degrees of Fahrenheit's thermometer by day, and fifty degrees by night. The plants should be gently syringed every fine day. Let the earth in the pots be kept moderately moist. The temperature may be increased five degrees more at the end of the first fortnight. This heat will be quite sufficient to flower the roses well. Smoke with tobacco frequently, to keep down the insects, as nothing is more injurious than these pests to the successful forcing of the rose.

AMATEUR'S FLOWER-GARDENING.—The flower borders will now be nearly clear of plants in flower. Let all dead stems be cut down, the surface raked over to clear off all leaves, weeds, etc., then put on a covering an inch or so thick of compost made of dung and loam in equal parts. Dig this carefully into the beds, and leave the surface rather rough. Your borders will then be in a good state to plant your **BULBS**; and now is a good time for this operation. We are supposing your borders of flowers to be of the mixed kind alluded to in the preceding paragraphs. You can now also transplant from your reserve beds the biennials, (plants of two years,) such as **WALLFLOWERS**, **Brompton** and **Queen stocks**, etc. It is yet too early to transplant **ROSES**, as they ought to lose most of their leaves previously to being removed.

EVERGREEN SHRUBS will transplant successfully during this month. Take them up with as much earth adhering to their roots as possible; plant them a little deeper than they have been, and give a good watering to settle the earth closely to their roots; cover the surface as far as the roots reach with some

short litter. Let the trees, if of any height, be well secured with stakes. If you attend to all these particulars you will succeed to your entire satisfaction.

PLANTS IN FRAMES AND PITS.—At this season mouldiness on the leaves of the plants in these places will be prevalent: mouldiness is really a crop of minute mushrooms or fungi. To prevent these parasites from spreading, let every leaf containing them be removed as soon as seen. We cannot press this particular too much upon your attention.

COTTAGER'S FLOWER-GARDEN.—Let borders devoted to flowers be now manured and dug, to benefit by the winter frosts. We love to see a cottage covered with woodbines, roses, and jessamines. If a cottager's dwelling is not already ornamented with those pleasant things, we hope he will try to procure them now. The woodbine, or honeysuckle, may be taken from out of many a hedge, and will soon grow if you tend it well by watering, training, and pruning. A climbing rose, or even the common monthly bluish China rose, you may obtain from some kind neighbour, who will readily give you a cutting or two, and you must plant them as we recommended in a former week's calendar. The jessamine also may be procured in a similar manner. For your information, however, we state that the price of those humble ornaments is not extravagant; you may procure good plants of all the three of any nurseryman for a couple of shillings.

PERENNIAL FLOWERS.

Now is the season for the cottager, as well as the amateur to improve his collection of perennial flower-roots; and in order that he may know what to inquire for, we subjoin a list of freely-flowering kinds, such as bloom at different times of the year, and stating their various heights and colours.

SPRING-BLOOMING FLOWERS.

- Adonis vernalis* (Spring Adonis), 6 in. Yellow.
- Alyssum saxatile* (Rock Madwort), 6 in. Yellow.
- Anemone apennina* (Mountain Anemone), 6 in. Blue.
- Arabis saxatile* (Rock Wall-crest), 6 in. White.
- Aubrietia deltoidea* (Triangle-leaved Aubrietia), 4 in. Purple.
- Cardamine pratensis, pleno* (Double Cuckow-flower), 1 ft. Purple.
- Gentiana acaulis* (Dwarf Gentian), 4 in. Deep blue.
- Hepatica triloba alba* (Common Hepatica), 3 in. White.
- " " *caerulea* (Blue Hepatica), 3 in. Blue.
- " " *rubra* (Red Hepatica), 3 in. Red.
- Iberis sempervirens* (Evergreen Candy-tuft), 9 in. White.
- Orobis verum* (Spring Bitter Vetch), 1 ft. Purple.
- Phlox divaricata* (Early-flowering Phlox), 1½ ft. Blue.
- Phlox verna* (Spring Phlox), 6 in. Pink.
- Phyteuma orbicularis* (Round-headed Rampion), 1 ft. Blue.
- Primula vulgaris, alba pleno* (Double-white Primrose), 3 in. Double white.
- " " *sulphurea* (Double sulphur-coloured), 3 in. Yellow.
- " " *violacea* (Double crimson), 3 in. Crimson.
- Pulmonaria virginica*, (Virginian Lungwort), 1 ft. Blue.

Pulsatella vernalis (Spring Anemone), 1 ft. Blue.
Tussilago alpina (Alpine Coltsfoot), 6 in. Purple.

SUMMER-BLOOMING FLOWERS.

Achillea ptarmica, flore pleno (Double Sneezewort), 1½ ft. White.
Anthericum liliastrum (Spiderwort), 1 ft. White.
Antirrhinum majus (Larger Snapdragon), 1½ ft. Various colours.
Aquilegia vulgaris (Common Columbine), 1½ ft. Various.
Bellis perennis, flore pleno (Double Daisy), 4 in. Various.
Betonica grandiflora (Large-flowered Betony), 1½ ft. Purple.
Caltha palustris, pleno (Double Marsh-marygold), 1 ft. Yellow.
Campanula carpatica (Carpatian Bell-flower), 6 in. Blue.
 „ *glomerata alba* (Clustered Bell-flower), 1 ft. White.
 „ *grandis* (Large Bell-flower), 1½ ft. Spotted.
 „ *persici folia* (Peach-leaved Bell-flower), 1½ ft. Blue.
 „ *trachelium* (Throatwort), 2 ft. Blue.
Chelone obliqua (Purple Chelone), 1½ ft. Purple.
Convallaria majalis (Lily of the Valley), 6 in. White.
Coreopsis lanceolata (Lance-leaved C.), 2½ ft. Yellow.
Delphinium Barlowii (Barlow's Larkspur), 3 ft. Blue.
Dianthus aggregatus, flore pleno (Double Sweet William).
Gentiana septemfidn (Crested Gentian), 6 in. Blue.
Hesperis matronalis, flore pleno (Double Rocket), 1½ ft. White.
Iris Germanica (German Iris), 2 ft. Blue.
Lupinus polyphyllus (Lupine), 3 ft. Blue.
Pæonia albiflora (White Peony), 2 ft. Various kinds.
 „ *officinalis* (Common Peony), 2 ft. do.
Penstemon gentianoides (Gentian-like Penstemon), 3 ft. Purple.
 „ *coccinea* (Purple P.), 3 ft. Purple.
Phlox Brightoniana (Brighton Phlox), 2 ft. Red.
 „ *candidissima alba* (Whitest Phlox), 1½ ft. White.
 „ *omniflora* (Many-flowered Phlox), 1 ft. White.
 „ *elegans* (Elegant Phlox), 1 ft. Purple.
Potentilla Macnabbiana (Macnab's Cinquefoil), 2 ft. Fine crimson.
Spiræa trifoliata (Three-leaved Spiræa), 1½ ft. White.
Trollius Europeanus (European Globe Ranunculus), 1 ft. Orange.

AUTUMN-BLOOMING FLOWERS.

Anemone vitæfolia (Vine-leaved Anemone), 2 ft. White.
 „ *Japonica* (Japan Anemone), 2 ft. Pink.
Aster amellus (Italian Starwort), 1½ ft. Blue.
 „ *elegans* (Elegant Starwort), 2 ft. Blue.
 „ *Novæ Anglica* (New England Starwort) 5 ft. Purple.
 „ *pulchellus* (Handsome Starwort), 6 in. Purple.
 „ *pulcherrima* (Handsome Starwort), 1½ ft. Blue.
 „ *spectabilis* (Showy Starwort), 1½ ft. Blue.
Chrysanthemum arcticum (Northern C.), 9 in. White.
Liatris squarrosa (Round-headed Liatris), 2 ft. Purple.

Matricaria grandiflora (Double Wild Chamomile) 1 ft. White double.

Enothera serotina (Late-flowering Evening Primrose), 3 ft. Yellow.
Phlox tardiflora (Slow-flowering Phlox), 1½ ft. White.
 „ *Wheeleriana* (Wheeler's Phlox), 3 ft. Red.
Pyrethrum uliginosum (Marsh Feverfew), 4 ft. White.
Rudbeckia hirta (Hairy Rudbeckia), 2 ft. Purple and yellow.
 „ *Drummondii*, 3 ft. Yellow and brown.
 „ *Newmannii*, 1½ ft. Yellow.
 „ *purpurea* (Purple Rudbeckia), 3 ft. Purple.
Solidago lanceolata (Lance-leaved Golden-rod), 3 ft. Yellow.
 „ *altissimum* (Tallest Golden-rod), 3 ft. Yellow.

The above is a selection of plants that are perfectly hardy, well suited either for the amateur or cottager's mixed flower-border; and which, if planted judiciously, will furnish flowers during the whole of the season. In planting them, put in one that flowers in spring, then one that flowers in autumn, then one that flowers in summer, then an autumn one, next one of the spring-flowering, and then one of the summer-flowering. Mix the colours in the same manner. The borders will by this method always present, taking it as a whole, a fair display of flowers.

FLORISTS' FLOWERS.

TULIPS.—The bed for these splendid flowers should now be in a state of forwardness. We mentioned previously that the bed should be drained, and the drainage covered with a little litter, to keep the soil separate; let the bed be turned over two or three times, and keep a look out for wire-worms, and destroy them.

RANUNCULUSES.—The tulip is said to be the fop of flowers, and the ranunculus the fine gentleman,—an observation that has much of truth in it. There is, however, more difficulty to grow the ranunculus well than the tulip. Greater care consequently is requisite to cultivate them. An open situation, far from smoke, a fertile, sandy loam, with a good portion of very much decayed cow-dung are indispensable requisites. Though the planting season is late in February, or early in March, yet, as the winter intervenes, the soil and bed must be prepared now. Adopt the same precautions as for tulips—to have the bed drained. The depth of soil should be at least sixteen inches; even eighteen inches would not be too much.

ANEMONES.—The same cultivation in regard to soil, etc., is requisite for these lovely flowers. They should be planted at the same time as the ranunculus, but a little addition of leaf-mould, if at hand, would be advantageous.

SHELTERS.—Tulips, ranunculuses, and anemones require shading during the time they are in flower. If expense is not an object, a shade so high as to allow the spectator to stand upright is the best; but where the means are limited, a few hoops bent over the beds high enough not to touch the flowers, and a covering of waterproof canvass will answer every purpose of sheltering the flowers from the heat of the sun and from the rain, which are both sad disfigurers of floral beauty.

In our next we shall give a select list of tulips.

T. APPLEBY.

THE WEEK'S WINDOW AND GREENHOUSE-GARDENING.

WINDOW PLANTS.—The cottager who can manage to grow half a dozen of pot-plants in his window—flower them well in summer, and keep them safe through the winter—may be said to be so far a good gardener. Gardeners, indeed, are often surprised at seeing how well some cottagers manage to keep so many of their geraniums from the frost, damp, and all the other inconveniences of a long winter, while others, who have better windows, more warmth, and probably more time on their hands, almost always lose their plants in winter; or, if they do manage to carry them through its severity, the chances are that the plants are so sickly that half of the following summer is over before they can be brought to flower, or to be fit to be seen. Now, if we could get the "COTTAGE GARDENER" circulated among these cottagers extensively, there could be no doubt about the benefit they would derive from it. Cottagers all over the country, or the younger members of their families, are now beginning to read with great eagerness, and if part of this current could be turned to gardening instructions—a subject which is really tasteful to large numbers of them—it could not fail in doing much good.

Window-plants are often more injured at this season through over-kindness than by neglect; rooms are now kept close and warm for the comfort of the family—I was going to say, for the comfort of the inmates, but if there are pot-plants in the window, they might be said to be part of the inmates, and therefore I should be wrong, because a close warm room encourages the plants in it to grow at all seasons. But, although plants look much better when they are growing, and have fresh young leaves on them, than when they are at rest—as they now should begin to be, it is contrary to nature and reason to treat them so kindly as to keep them growing while they ought to be at rest. So to act, is just the same as if a working-man, after a hard day's work, were supplied with strong drink to get him to work all night also—and it needs no prophet to tell him how soon that system would injure his health: and it is exactly the same with his plants. Every plant—no matter what part of the world it is a native of—requires a season of rest, and, in our climate, the winter is the most natural time to let it have that repose; but, as if to prove that no rule is without an exception, there are many plants now beginning to grow, even in our own cold climate. The crocus, hyacinth, tulip, and many other such plants, are now making roots and pushing forward their flower-buds under ground, in order to be ready to throw up strong flowers at their usual time in spring. Now, gardeners have long taken advantage of the natural habits of these plants, and, instead of leaving them all winter under the frost and snow, they put them into pots in the autumn, and keep them all winter in a kind of spring temperature; and in this simple way they get them to flower full two months before the usual time of their flowering in the open garden—and that without doing any violence to their natural habits.

On the other hand, all the geraniums, fuchsias, and other kinds of window-plants that have flowered through the summer, should now be let gradually go to rest. Instead of being confined in-doors, they ought to stand outside the window several hours every day, the soil in the pots being kept rather dry, but not quite dry; yet, if they are watered about once a week it will be enough at this dull season, unless the room is too warm for them at night, which will dry the soil sooner.

To learn the right way of watering the different

kinds of plants one may grow even in a window, is the most difficult point in gardening; and, after all that you can learn from the fullest details that can be laid down on the subject, you must not think yourself master of the art of duly watering till you have a certain amount of practice. I shall, therefore, state at the outset the best rules to be attended to in watering window-plants; but as watering is a very knotty point, and is the cause of nine-tenths of the hardships to which plants are liable, I shall often have to make a passing remark on it when I come to speak of different kinds of plants. Saucers of some sort or other should always be kept under flower-pots in a window to catch the water that drains from them; but this drainage water should not be allowed to remain in the saucers for any length of time during the winter, unless, indeed, you have the misfortune to neglect to water a particular pot till the soil in it gets perfectly dry and dusty; in that case the soil shrinks so much, that a free passage is allowed for the water to escape between the soil and the pot, and then you may water as long as you please without moistening the earth or doing any good to the plant, for the water will run down into the saucer as fast as you supply it. To get over this difficulty, the only safe way is to fill the saucer with water, and the dry soil will suck it up gradually, the same way as a dry sponge would, and when you see the top of the soil beginning to look moist, throw away the water if any remains in the saucer. Now one not versed in the matter might naturally suppose there could be no harm in leaving a little water in the saucer, seeing the soil took it up so easily as soon as it got dry enough to require it,—but that would be a dangerous mistake at this season, although it might not be injurious in summer, if not made a regular practice. Standing water would soon turn all the soil in the pots quite sour and unfit for most plants to live in for any length of time.

In watering window-plants, and indeed plants in any part of the house, as also those in a greenhouse, the work should be done always regularly, and for the winter months as soon after breakfast as is convenient. When I say regularly, I mean that you should look over your plants, to see if they want water, or anything done to them. When you find a pot with the soil as wet as it was yesterday, or the day before, depend on it there is something wrong about it, and unless you find out what that is, and provide a remedy, the soil will turn sour in a few days, and your plant suffer. This is the exact opposite of the case of the soil getting quite dry; and when you know the remedy for the extreme cases, you will be more able to manage the intermediate degrees. The best cure for this wet pot is to turn the plant and soil out of it, and to put them into a fresh clean pot of exactly the same size, or, as a gardener would say, shift it to a dry pot. If you never saw a plant "shifted," this is the way to do it properly:—take hold of the plant-pot in your right hand and cover the top of it with the four fingers of the left hand, passing the stem of the plant between the fore and middle finger; then lower the left hand till the pot is turned upside down, and the soil and pot then rest on the palm of the left hand; now take hold of the bottom of the pot with the right hand, and strike the rim of it gently against the window-sill, and it will easily part with the soil; then, without moving the left hand, put the new pot over the ball of soil, and the work of shifting is finished. You might, however, try and find out the cause of the soil turning so wet, before you put on the new pot.

D. BEATON.

THE WEEK'S KITCHEN-GARDENING.

BALM plant.—This, like the herbs enumerated last week, must now be planted with roots ready formed. Two or three plants will be quite enough for a family. It is a native of Italy, and more than two centuries ago had been imported into this country, and had become an inhabitant of all our gentry's gardens. The causes of this general cultivation, was the high repute it had among the physicians of those days. It was considered by them efficacious in paralysis, and many other diseases attended by great loss of strength; and the opinion of its great virtues so prevailed that it became common to use its name as expressive of relief from pain, or any other distress. It is now only used in preparing drinks for sick persons.

BURNET plant in a dry, light soil, having in it a good quantity of chalk, or limy rubbish. The plants must be a foot apart, and be watered until rooted if dry weather occurs immediately after they are planted. It is used in salads, soups, and cool tankards.

CARDOONS earth up.—The most successful mode of doing this is, when they are about eighteen inches high, to close the leaves together by encircling them with a bay-band, and then putting earth round each plant, a dry day being selected for performing it. As they continue to grow, fresh bands and earth must be constantly applied until the plants are blanched to the height of two feet, or about two-thirds of their stems. They will be fit for use in eight or ten weeks after the earthing first commences. Care must be had in earthing them up, to prevent the earth falling in between the leaves, which is liable to induce decay. The surface of the soil should likewise be beaten smooth to throw off the rain. In severe weather their tops should be covered with litter, by which they may be preserved in a serviceable state throughout the winter.

The cardoon is not so much cultivated as it deserves, being excellent as a salad, as well as when stewed, or added to soups.

CUCUMBERS.—Last week having given full directions for forming the hot-bed, we now proceed to the next steps in the cultivation of this vegetable—earthing the bed and planting the seedlings.

When the earth is put on for frame culture, it is at first to be spread only two or three inches deep, but under the centre of each light a hillock must be constructed, eight or ten inches deep, and a foot in diameter. The earthing should be performed at least four or five days before planting, at which time the earth must be examined; if it be of a white colour and caked, or, as it is technically termed, burnt, it must be renewed, for the plants will not thrive in it, and holes must be bored in the bed to give vent to the steam.

The mould of the hillocks being well stirred, the plants must be turned out of the pots without disturbing the ball of earth, and one containing three plants inserted in each; a little water, previously heated by keeping it for an hour or two shut up in the frame, must be given, and the glasses kept perfectly close until the next morning. Any plants not in pots must be moved by the trowel with as much earth pertaining to their roots as possible. The shade of a mat is always requisite during the meridian of bright days until the plants are well established. They must be pressed gradually away from each other, until at least eight inches apart; nothing can be more erroneous than to allow them to proceed with the stems nearly touching.

When well taken root, earth must be added regularly over the bed, until it is level with the tops of the mounds; for if there be not a sufficient depth of soil, the leaves will always droop during hot days, unless they are shaded, or more water given them than is proper.

If the plants have to be raised from seed, they had better be sown four together, in pots six inches wide across the top, not burying the seed more than half an inch deep, and plunging the pots to their rim in the earth of the bed. No water will be required until the seedlings have rough leaves two or three inches wide, and are then turned out of the pots, and planted in the bed without disturbing their roots.

ENDIVE.—Clear from weeds and blanch. To effect this, cover the soil between the plants with sand, and turn over each of those intended for immediate blanching a flower-pot with its drainage-hole closely stopped by a cork, so as entirely to exclude the light. The best plan is to take the pots off daily for a quarter of an hour, if the weather is dry, and then to put on a fresh dry pot stopped similarly to the one taken off. The pot taken off may be dried ready for the next day. By this means mouldiness and decay will be prevented, to which endive is very liable during blanching. If flower-pots are not at command, the leaves of the endive plant may be tied together, and each plant covered with a heap of sand or coal-ashes.

HERBARY.—All beds of Pot-herbs should have the dead stalks and weeds removed, and a little leaf-mould and limy rubbish slightly forked in among the plants.

SALSIFY and **SCORZONERA** must be taken up and stored in the same way as directed for carrots. These roots deserve to be much more cultivated. Salsify boiled and mashed eats with a flavour resembling that of oyster-patties; but both that and scorzonera are usually boiled and eaten like the carrot.

MISCELLANEOUS INFORMATION.

POTATOES.

MR. SAUL, of Nulebey Cottage, near Garstang, in Lancashire, writes to us as follows:—"I observe in page 6 of 'The Cottage Gardener' that it is stated that those planted in spring have failed. I consider my crop of winter potatoes (Regent's) not a failure. I planted on the 19th of April last upon Nulebey Moss-land, and commenced taking them up on the 24th and 25th of August, when the produce was at

the rate of 150 loads per acre, and 240 lbs to the load. I consider this a good produce, and all were perfectly free from the disease. I have no doubt but that large quantities might have been saved when attacked by the disease, if they had been taken up as soon as there was any appearance of the disease amongst them. It is a great mistake to suppose that potatoes will not keep if taken up before they are ripe. I have proved, for the last three years, that they will keep if even taken up when but half ripe, or even a quarter. Strange as

this may appear to some, but such is the fact; and there are many other persons here who have tested the same thing. Those who plant early potatoes early in the spring in the open ground for the market, and commence taking up about the 29th of May, only offer the large ones in the market, reserving the small ones for seed the following year, which is found to answer remarkably well. When taken up with the large ones, the small ones are placed upon the surface, and there they remain till they become quite green and hard; they are then gathered and stored, so that they may sprout well before they are planted the following spring. Being well sprouted before planting is of great importance in making them much earlier; and very likely, if those small potatoes had in some soils remained till July, they would have been affected by the disease."

We are very glad to hear that even spring-planted potatoes have so well escaped in some places. This is not the first time of our hearing of such freedom from the disease in soils containing peaty matters, which, we presume, is the case also with Nulebey Moss. We have no predisposition to greening potatoes for seed, nor to the mode of storing early potatoes, mentioned by Mr. Saul; however, facts are stubborn things: and if the adopters of such unnatural processes find their potatoes generally free from disease, we will be among the earliest and loudest to recommend the universal adoption of those processes. At present, we have not sufficient evidence to induce us to advocate anything but autumn-planting the main crop of potatoes; or where this is impracticable, storing the seed potatoes in earth until they can be planted. We have already published many letters in favour of autumn-planting, and now we have the following from the Rev. L. Foot, of Long Bredy, near Dorchester:

"I have now for three years tested Mr. Johnson's system of autumn potato-planting with great success. This year I fear mine will turn out to be the only good crop in three parishes or in the surrounding district. From one particular sort, so planted, I have had from a perch and half of ground $5\frac{1}{2}$ bushels, which is at the rate of 140 sacks to the acre. In general my crop is sound, and has averaged about 60 sacks to the acre.

"None of my parishioners or neighbours have yet been induced to make trial of Mr. Johnson's method; but now some few appear to be stirred up by the proof before their eyes to try the simple process of planting at the same time of digging their crop. I fear they are not provided with the ashes of burnt weeds and other 'charred matters,' which I have found to be a very important ingredient."

CELERY.

HAVING once seen a single stem, or stick of celery, weighing eleven pounds, we thought that the growers of this vegetable at Sheffield might have stimulated it until it reached to a still greater weight. In this we were wrong, for it appears that the competitors exhibit two heads of celery, and the joint weight of these is given. Mr. Turner, judge at the late Sheffield celery show, has obligingly sent us the following information upon the subject:

"There are many persons in this neighbourhood who raise celery-plants for sale, and a good deal of competition arises to ascertain whose are the best for largeness, solidity, and flavour. The show in question comprised plants from the following raisers, viz.:—Mr. John Nutt, Mr. H. Brown, Mr. Bell, Mr. Sykes,

Mr. Wright, and Mr. Jennett. I now give you the weights of those sorts which were the winners; they were shown in twos, or braces:

"1st. Mr. J. Smith, weight of two stems or sticks, 18lbs. 12 oz. Both Mr. Nutt's plants.

"2nd. Mr. W. Grayson, brace, 16lbs. 4 oz. Both Mr. Nutt's plants.

"3rd. Mr. Nutt's brace, 15 lbs. 8 oz. His own plants.

"4th. Mr. H. Brown's brace, 12 lbs. 8 oz. One of Mr. Nutt's plants, the other of his own raising.

"5th. Mr. W. Brown's brace, 13 lb. 12 oz. One of Mr. Nutt's plants, the other of Mr. H. Brown's.

"6th. Mr. Bray's brace, 13 lbs. 8 oz. Both Mr. Nutt's plants.

"7th. Mr. Rodgers' brace, 13 lbs. One of Nutt's plants, and the other of Bell's.

"There was another show last Tuesday. I showed a brace which weighed 22 $\frac{1}{2}$ lbs. before they were dressed; after they were dressed for showing, they weighed 20lbs. 14 oz.

"I must say that for size, flavour, etc., Mr. Nutt's sort surpasses any that I ever grew. For the future I shall grow no sort else."

MY FLOWERS.

(No. 2.)

THE first morning visit to my garden is always one of great interest. I love to ask my little charges how they do after the dewy hours of night; and there is such a coolness and sweetness in the early day, that their tints and fragrance seem increased a hundred fold. The shining drops tremble and sparkle so prettily in their tiny cups, and they seem so fully to enjoy their pure repast, that it makes me almost wish I could live upon dewdrops too.

Nevertheless, I almost daily miss a well-known face. My flowers are drooping and fading, even though this summer-like autumn still prevails. By nipping off the decaying blooms, I aid the declining strength of the plant, but it is only for a time. My dahlias, chrysanthemums, scarlet-lychnis, and hawkweed, are the chief ornaments of my borders now, and the first rains will spoil their beauty. What a useful beautiful plant is the fuchsia! I have one large circular bed chiefly filled with them, and the effect is lovely. The bed is somewhat raised, in the centre stands a large plant, and the others are placed around it, at distances of three or four feet. The two last winters have been so mild, that my fuchsias have not died down at all. I protected their roots well with coal-ashes, making quite a little hillock at their feet, and shaded the remainder of the plants with stakes covered with the boughs of the spruce-fir, so as to keep off the perpendicular attack of the frost. I was led to do this, in the first instance, by observing the evident appearances of life in my plants long after I thought they must have died down to the ashes, as usual; and by this plan I petted them through the spring frosts and chilling gusts, and had the pleasure of introducing them to the warm sun again, when all danger ceased, in the full size to which they had grown the year before. Few, perhaps, of my readers can obtain boughs of the spruce-fir, nor are they needful; any matting or other covering will do: nor can I be certain that in ordinary winters such a trial will succeed. The two last seasons have been peculiar; but it is worth while to try the experiment. My plants are now quite shrubs in size, and I hope to tell my friends in the spring how they have struggled

through the difficulties of this coming winter. Be particular in covering their roots well with ashes: they will, without other protection, die down to the ground, but life will remain safely in the root; and by peeping below the ashes in the spring, you will see the little tender shoots starting forth ready to replace the dead boughs, which must be cut away. Some ladies cut down their plants before they "ash" them up, but they had better remain; sometimes they do not die so far down as at others, and then you need not cut them off so low. I am glad to see these very graceful flowers more frequently in cottage gardens. The culture is simple, and the effect pleasing to the eye. In my fuchsia bed I interpose roses, which bloom during the infancy of their autumnal friends, thereby keeping up a succession of flowers. The lighter coloured dahlias do well among them also, if your bed is large enough, or you have no rose-trees there. We should try to mingle colours well and effectively in our garden, as we do in our dress. Nature certainly admits of stronger contrasts, and requires less help than we could venture to use among our ribbons and trinkets, but still we may, with caution, be her handmaids. By very simple means we might embellish our gardens, however small or inconveniently placed. The poor might improve the appearance of every hamlet by a little attention to the arrangement of the plot of ground around their cottages, which would cost nothing, and increase their interest in home enjoyments. Every apple-tree, while bearing its useful part in nature, might add to its beauty by supporting a clustering honeysuckle,—that sweet sister of the rose,—which would in return conceal the rough ungainly arms of an old spreading tree, without at all doing it harm. Then, if the cottage walls were clothed with monthly roses, jasmine, or the sweet-scented clematis, which require little else than nailing up and pruning, while a gable end might support a pear or plum-tree: how pretty, how cared for, how comfortable would it seem to the passer by. A neat ornamental cottage-garden generally bespeaks a happy household. The outward smiles seem to spring from those within; and I feel it to be our duty,—the duty of the poor as well as of the rich,—to testify their sense of God's exceeding mercy, by using and profiting by those pure and simple pleasures which He so richly provides for us all. No pleasures are so sweet as those that flow *immediately* from His gracious and parental hand.

ROSA.

COTTAGE AND ALLOTMENT GARDENING.

(No. IV.)

BY THE EDITOR.

HOEING.—Weeds feed upon the manure in a soil, therefore every weed helps to rob the crops, and the hoe should be kept constantly going. You cannot root out weeds too thoroughly, nor can you loosen the surface of the ground too frequently; this lets in the air and the moisture in fitting quantities. The looser the soil the less deep does frost penetrate, and the less drying is the sun; therefore hoeing is beneficial to crops both in winter and summer.

WATERING.—The best water for garden purposes is rain-water, next to this is pond-water. The worst is that from springs and wells, for this is so much colder than rain,—the water which God pours upon plants. When giving water to cabbages, etc., at the time of planting them, the best mode is to make the hole with a dibble, and to fill this with water *before* putting in the plant.

TRENCHING ground requires full double the labour that common digging does, but it fully compensates for the extra labour by the increased crops which it causes to be produced. It brings a fresh soil to the surface, and it deeply loosens the whole, so as to promote its drainage. The way to trench properly and effectually is as follows:

From the end of the piece of ground where it is intended to begin, take out a trench two spades deep, and twenty inches wide, and wheel the earth to the opposite end, to fill up and finish with. Measure off the same width of another trench, then stretch the line and mark it out with the spade. Proceed in this way until the whole of the trenches are outlined; after which, begin at one end and fill up the first trench with the surface or "top spits" of the second one; then take the bottom "spit" of the latter, and throw it in such a way over the other as to form an elevated sharp-pointed ridge. By this means a portion of fresh soil is annually brought on the surface to the place of that which the crop of the past season may have in some measure exhausted.

RIDGING.—Every bit of ground that has not a winter crop upon it, should be dug up into rough ridges, to be better penetrated by the frost. The greater the cold which gets into the earth, and the deeper it goes, the more slugs and other vermin does it kill. Mr. Barnes keeps his uncropped ground constantly in ridges, or stirring about, and there is no doubt it kills and drives away insects as well as destroys weeds. Mr. Barnes says, "I keep all ground, as soon as a crop is done with, well trenched, burying all the refuse I possibly can in a green state, casting the earth into rough ridges, tumbling those ridges over with a strong fork on frosty mornings, in winter and spring, and during hot sunny days in the summer; and continually changing the crops. Keeping the hoe at work at all seasons in suitable weather, forking up all odd corners and spare ground, without loss of time. By this management I find the ground is always in good condition and never tired by cropping, some judgment only being exercised in applying such properties again to the soil that have been taken from it, or that are likely to be required by the succeeding crop."

GERANIUM CUTTINGS.

The following is a mode I have adopted for planting geranium cuttings: In an ordinary sized flower-pot, I planted from three to four cuttings close to the sides of the pot, without any soil between the cutting and side of the pot. The cuttings are trimmed in the usual manner; but I have found that by being planted as I have mentioned, the plant is greatly strengthened, and strikes much sooner.

I had sixteen cuttings, and from unavoidable circumstances did not set them for four days, but left them in water; when I came to plant them I found they were in a very poor state, and had little hope of their living; but out of the sixteen not one has failed. I have also had the same success with a cutting from a fuschia.

A. N. A.

VINES OUT OF DOORS.

"Very fine grapes may annually be grown on the surface of walls in the open air to the 54th degree of latitude, and even more north in more favourable seasons."—*Clement Hoare on Vines.*

ON RAISING PLANTS.—When vines are pruned in the autumn, take a long branch, and deprive it carefully of all its buds except two or three at the top of the ripe wood.

Bury all the branch above twelve inches deep except what contains the buds, which should be near the wall on which the vine is to grow.

There are other ways of propagating vines, but this is the most expeditious.

The vine should be cut down every year to two buds until it measures three inches in circumference round the stem at the ground. Then let the two buds grow into branches; train them horizontally along the wall about six inches from the ground. On the following year train up four upright branches from each horizontal branch, twenty inches from each other. In the autumn cut down the first and third branches when the vine has shed its leaves, and remove the wood which is not quite ripe from the top of the remaining branches.

This is to be done every year at the fall of the leaf, so as to cut down each upright branch when two years old, after it has borne fruit. Or plant several vines three inches from the wall and twenty inches from each other, and serve them in a similar manner to the upright branches. This plan of growing grapes out of doors is vastly superior to every other, and if the growers of vines will greatly reduce the number of bunches, and the grapes in each bunch, the grapes will grow to a proper size.

The hardiest vines for growing in the open air are Miller's Burgundy, white muscadine, esperione, sweet water, and black cluster.

The writer of these notes has practised with great success for several years the plan he has now explained.

C. A. A. LLOYD.

HARDY AND GREEN-HOUSE PLANTS LATELY INTRODUCED AND WORTH CULTIVATING.

MONARDELLA UNULATA (Wavy Monardella).—This hardy annual was found, in 1847, near Monterey, in California, by Mr. Hartweg. Sow it in March, in a rich light border. Height eight inches. Flowers blue, appearing in June, and lasting a long time.—*Hort. Society's Journal*, iii. 312.

GASTRONEMA SANGUINEUM (Blood-coloured Gastro-nema).—This Greenhouse bulb is a native of Caffraria, whence it was imported in 1845, by Messrs. Backhouse, Nurserymen, of York. It is increased by offsets, and thrives in a rich sandy loam.—*Ibid*.

ROSA RUGOSA (Wrinkled Rose).—A hardy half-climbing rose, sent from China by Mr. Fortune, who found it at Shanghai. It may be propagated by budding, or by cuttings. Its flowers, semi-double, purple, and sweet-scented, bloom in June and July.—*Ibid*.

NEMOPHILA MACULATA (Spotted Nemophila).—“This is the best annual yet raised from Mr. Hartweg's seeds.” It is a native of California, and hardy. Flowers white, with a purple spot or blotch at the tip of each flower leaf, or petal.—*Ibid*.

CLEMATIS INDIVISA; **VAR LOBATA** (Whole-leaved Clematis; lobed variety).—“Really an ornamental and showy greenhouse plant.” It is a native of New Zealand. It was first discovered during Captain Cook's voyage, but has only been introduced to this country recently. It festoons the trees on the shores of the Bay of Islands. Flowers white, in panicles (bunches) often a foot long.—*Botanical Mag. Tab.* 4398.

IMPATIENS REPENS (Creeping Balsam).—“The finest of all the yellow-flowered balsams.” It is a native of cool, moist places in the highest mountains of Ceylon. It was first discovered there by Mr. Moon; but Mrs.

General Walker and Mr. Gardner found it at Allagala, 4,000 feet above the level of the sea. It will probably flourish in a warm greenhouse, and must be kept very moist.—*Ibid*.

HUNTS FROM OUR CONTEMPORARIES.

SCHOOL GARDENS.—In the *Midland Florist* for October is an account of an admirable plan for promoting the love of industry in lads, which we should like to see adopted in every large town. The philanthropists of Liverpool are second to none in the kingdom, and to them we recommend the plan as one very likely to prove of immense benefit. We extract the following from the above-named clever little Nottingham publication: “In the immediate neighbourhood of Nottingham are an immense number of small gardens, occupied and cultivated by all grades of society; and with a most laudable and praiseworthy feeling the friends connected with the High-pavement Chapel Boys' Sunday-school have purchased two of these inclosures, in each of which is a commodious summer-house. One of these gardens is cultivated by the elder boys, the other by the juniors. Each garden is subdivided into smaller allotments, which are assigned to their respective tenants, boys from ten to fourteen years old, who cultivate and crop them according to their own fancy, a small portion of each being devoted to flowers. The diligence and ability displayed by these youthful gardeners is really astonishing. We have inspected their crops during several past summers, and with truth can say we were highly delighted with them. The onions, lettuce, celery, carrots, potatoes, etc., were excellent, and would vie with the productions of older and more experienced cultivators. Prize gooseberries are also grown, and this year the crops of London, Companion, Gunner, Eagle, etc., were amongst the best we have ever seen, either at Nottingham or elsewhere; in fact, these boys always endeavour to obtain, either of seeds or plants, the best varieties possible. In connection with these gardens, and to excite emulation, a vegetable and flower-show is instituted. This is held in the school-rooms at Nottingham, and prizes are given for the best productions in vegetables, as well as for stands of pansies, verbenas, collections of annual and perennial flowers and nosegays, or *bouquets*, as they are called by some, but we fancy our readers will like the old English name best. These exhibitions of youthful skill and industry are well attended.” Should any of our readers wish, we can furnish them with the rules by which these school-gardens are managed. They are to be found in the above publication.—*Liverpool Chronicle*.

BASTARD-TRENCHING is thus performed:—Open a trench two feet and a half, or a yard wide, one full spit and the shovelling deep, and wheel the soil from it to where it is intended to finish the piece; then put in the dung and dig it in with the bottom spit in the trench; then fill up this trench with the top spit, etc., of the second, treating it in like manner, and so on. The advantages of this plan of working the soil are, the good soil is retained at top—an important consideration where the subsoil is poor or bad; the bottom soil is enriched and loosened for the penetration and nourishment of the roots, and, allowing them to descend deeper, they are not so liable to suffer from drought in summer; strong soil is rendered capable of absorbing more moisture, and yet remains drier at the surface by the water passing down more rapidly to the subsoil, and it ensures a thorough shifting of the soil.

In all trenching, whether one, two, or more spades deep, always, previous to digging, put the top of each trench two or three inches deep or more, with all weeds and other litter at the bottom of the open one, which not only makes clean digging and increases the depth of loose soil, but all weeds and their seeds are regularly buried at such a depth that the weeds themselves will rot, and their seeds cannot vegetate.—*Modern Gardener's Dictionary*.

POTATO MURRAIN.—We are glad to find that Mr. Errington coincides with the opinions we have so long advocated relative to the cause and prevention of this disease. "Many pits" (of potatoes) says Mr. E., "uncovered a week or two after filling, would smoke like a smothered bonfire. Now, if this is not an abuse of the constitution of the potato, what is? Ought not some bad results to have been expected from such a course?" Mr. Errington's recommendations for the better cultivation of the potato are to keep it free from fermentation, cool, slightly damp and dark, by storing the tubers mixed with earth; planting early varieties, and not later than March; and using a soil not recently manured.—*Horticultural Society's Jour.* iii. 278.

BARLOW'S LUPINE (*Delphinium Barlowii*).—This beautiful variety of the lupine was raised about nineteen years since, by Mr. Barlow, then a Manchester weaver, and taking great delight in raising seedling varieties.—*Gardener's Chronicle*.

WALKS.—Mr. Meehan, gardener to Colonel Harcourt, in the Isle of Wight, says that good, hard, permanent walks are made by covering them three inches thick with the following mixture. To three bushels of coal-ashes, not sifted very fine, add one bushel of fine gravel. Add water to these, and mix them until they become about as soft as mortar. Spread it over the walks, the surface of which previously should be slightly broken, and raked smooth. Make the mortar-like mixture even by spreading it with a piece of board. It will become hard in a few days.—*Ibid.*

PEARS FROM THE HORTICULTURAL SOCIETY'S GARDEN.—Owing to the late spring frosts, the pear crop has been partial, and the varieties stored are fewer than usual. There are some good specimens, however, from the walls. One *Beurré Diel* weighed 1 lb. 4 oz., and measured 12½ inches in circumference. Specimens of another variety, *Van Mons. Leon Le Clerc*, were between 5 and 6 inches long, and very handsome. "The tree, however, seems to dislike the quince stock."—*Ibid.*

CHINESE GARDENING.—The Chinese are a nation of the most industrious habits, and must be considered an agricultural people. They have most wisely established laws for the protection and encouragement of agriculture; and to such an extent is it carried, that the emperor does not think it derogatory to his dignity, once in every year, at the agricultural festival, to descend from his throne, clad as a husbandman, to set the laudable example to his subjects of tilling the earth. The appointed day having been previously proclaimed throughout the empire, the emperor goes forth and ploughs a particular field, and every farmer throughout the empire simultaneously turns up a portion of his own farm. The produce of the field ploughed by the emperor is always most carefully preserved, being considered far superior to any other. The ancient laws of the country declare the peculiar manner in which the sovereign shall perform this ceremony. By another ancient law, all uncultivated and neglected lands are declared forfeited to the emperor, who grants them to the farmers on condition of their being kept in a proper state of cultivation. The con-

sequence of this is, that in China there is not an uncultivated spot to be seen. A fifth, and in some cases a fourth part, of all produce is reserved for the emperor, which is paid in kind to the mandarin of the prince who farms the tax. There is one great peculiarity in Chinese agriculture, which, if adopted, might prove highly advantageous to British farmers. All seeds, previous to being sown, are steeped in liquid manure until they germinate; and to this, coupled with their system of irrigation, may be attributed the rich luxuriance and abundance of their various crops. Their ingenuity and perseverance may daily be witnessed in the terraces built one above the other up to the summit of a rocky mountain. They form reservoirs and dams on each platform, and the water having passed along one terrace, is received into the reservoir of the next below, and thus descend, step by step, in its irrigatory course. As they cultivate the hills, so do they make the morasses subservient to the support of man. Split bamboos are placed upon the marshes, and over these layers of earth. In this artificial soil, vegetables and potherbs are raised in the greatest perfection. There is no plant, in short, growing that is not made subservient to man's use. They extract the finest oil from the kernels of apricots, and common oil from cotton and turnip-seed. A beautiful black dye is prepared from the cups of acorns, and the finest scarlet from the flowers of the cactus.

The dwarf vegetation of China is peculiar to that country. I have in my possession an oak tree two feet high, bearing acorns, and its trunk bearing all the external marks of an aged tree. I have also had orange and citron-trees of the same size, bearing fruit of a very fine flavour. One of these orange-trees used to produce, at the same moment, incipient buds, blossoms in full flower, fruit newly set, and of full size, both in a green state and ripe. I have seen a lu-chee tree, whose natural size is that of a full-grown mulberry, dwarfed into one of three feet, its trunk having all the appearance of old timber, and the branches naturally tapered. The mode of dwarfing is simple: the branch of a full-grown tree is covered with mould, which is bound round with cloth or matting, and kept moist; the fibres soon shoot into the mould. The branch is then cut from the tree, planted in the earth, and the fibres thus become the roots, and the branch a tree, bearing blossoms and fruit. The buds at the extremity are taken off, and thus other buds and branches are formed. After a certain time syrup is applied to the stem, which attracts insects, and the bark being thus injured gives the knotted and aged appearance of old trees, pieces of bamboo being applied to give any desired form to the branches.—*Dublin University Magazine*, Sept., 1848.

LILIES.—Less attention than it deserves is paid by the amateur florist to the genus *Lilium*, although among its species are so many lovely flowers. All those which are half-hardy, as the Purple Lily, *L. atrosanguineum*, White beautiful Lily, *L. speciosum album*, and Spotted Lily, *L. punctatum*, may be grown with superior excellence in the following mode:

Pot them in 6-inch pots early in November, drained well, and filled with one part charred turfy loam, one part leaf-mould, one part cow-dung, and one part sandy loam. Bury the bulbs only just beneath the surface—give water after two or three days—place on the front shelf of the greenhouse, and when the roots reach the bottom of the pots, remove at once to 12-inch pots to remain. When bloom-buds appear, give liquid manure once a week, besides watering as required. Shade whilst in bloom, and, as the leaves decay, gradually reduce the application of water. In November,

re-pot the bulbs, removing the offsets, in 6-inch pots as before.

POTTING MATERIALS.—Mr. Errington has in his potting-shed twenty bins, each containing a distinct material useful for potting, though each material is not required for every plant, nor at every shift:

1. Strong tenacious loam.
2. Half-rotten leaf-mould.
3. Heath soil.
4. Horse droppings.
5. Cow-dung.
6. Charcoal and wood-ashes.
7. Bone-dust.
8. Sharp sand.
9. Burnt turf of No. 1.
10. Moss, well scalded.
11. Heath-soil of No. 3, in squares.
12. Loam of No. 1, in squares.
13. One-inch mixed drainage.
14. Two-inch ditto.
15. Small ditto.
16. One-inch bottom crocks.
17. Two-inch ditto.
18. Three-inch ditto.
19. Charcoal, large lumps.
20. One-inch boiled bones for bottoms.

—*Gardeners' Chron.*

DURATION OF VARIETIES.—Except from a convulsion destroying the world, a species never becomes extinct, but every variety has a limited existence.

A new kind of cultivated fruit may exist for many years, and grafting on to more vigorous stocks may protract its duration for centuries, but decrepitude and death come at last. In the case of flowers, and other plants incapable of obtaining new organs of nutriment by grafting, the duration of varieties is much shorter. A variety of the Potato lasts in vigour about 20 years; of the Anemone, about 15; of the Ranunculus, about 20; of the Pelargonium, about 10: but the highest perfection of this last flower, Captain Thurtell informs us, is from its third to its sixth year.—*Gardeners' Almanac.*

EARLY PEAS.—Mr. Barnes has again favoured us with the results of his experiments, and it will be seen that they are still decisively in favour of *Cormack's Prince Albert.*

Cormack's Prince Albert.—Sown 5th December, 1844; in bloom April 21st, 1845; gathered May 29th.

Warwick.—Sown same day, same preparation, and the whole of after management the same; in bloom May 2nd; gathered June 10th.

Cormack's Prince Albert.—Sown in pans March 6th; transplanted April 3rd; in bloom May 7th; gathered June 1st, 1845. South aspect.

Warwick.—Sown same day, transplanted, and after management exactly the same, the row being 100 feet in length, was planted half with each, and sheltered exactly the same; east aspect; in bloom May 15th; gathered June 10th, 1845.—*Ibid.*

TO CORRESPONDENTS.

AMICUS.—Thanks for the extract; we think it is from "Fortune's Three Years in China;" but the matter is useful.

R. A. (Birmingham.)—In planting gooseberries and currants, trench the ground three feet deep before planting, if such trenching has not been done to the garden recently. Cut the gooseberry-shoots so as to leave only three or four, and shorten these so that not more than one bud remains. Serve the red and white currants similarly, but leave two buds on each shoot. Sprinkle some leaves, or a little leaf-mould, about the roots, and spread these out evenly in a circle of which the stem is the centre. Let the roots be as little injured as possible, and not more than six inches below the surface of the soil. Cut off the tap root.

A. B. (George-street, Euston-square)—If expense is no object, "London's Encyclopædia of Gardening." If a cheaper work is required "Johnson's Dictionary of Modern Gardening."

W. D. P. (Canonbury.)—We cannot say whether drainage would benefit your soil unless we knew its depth, and the nature of the subsoil. The best addition to the soil would be a thick coat of clay and chalk, or clayey marl. A list of roses was in our last Number. Lists of fruits will appear from time to time. We cannot recommend nurserymen.

MANGOLD WURTZEL LEAVES may be kept for some time if a slice of the root is cut off with them, and they are laid into the earth in rows, as cabbage-stalks are. Cutting off a slice will not injure the roots keeping.

W. (Dublin.)—Trench the whole of your piece of meadow, and turn the top, or turf-spit, to the bottom: lime will not be required. We can scarcely expect a good potato-crop from a deep clay. The potatoes we recommend are Julys and red-nosed kidneys.

REV. A. FOSTER.—A most efficient destroyer of the American Blight is coal-tar, applied to each patch of the blight with a brush. The entire trunk of a tree must not be thus tarred, or it will be injured, and perhaps killed. The tar should be applied as soon as the blight appears in the spring.

REV. J. VINCENT.—It is not sufficient merely to earth up the potatoes. If not put in alternate layers with earth, and covered at least a foot deep with earth, in the form of a ridged roof, the wet and vicissitudes of temperature promote putrefaction. We are glad that you approve of autumn-planting.

M. FRANCAIS (Cheltenham.)—An announcement in our last Number will show that we had anticipated your wish. Mr. Beaton's first communication appears in to-day's paper.

ASH-LEAVED KIDNEYS (F of Y.)—You may safely plant them during this month, but they will not be so early as those kept out of the ground and forced to sprout by being stored in a warm room during the winter, as they do in Cheshire and Lancashire. The Cheshire mode, however, is the most calculated to bring on disease. For the Northern counties eight inches is the safest depth for planting the Potato in autumn. Plant whole, middle-sized Potatoes.

SALT AS A MANURE (A. N. A.)—We will take an early opportunity of giving some facts relative to this fertilizer.

WALTER FERHITT, Esq.—Very much obliged, but cannot spare the space at present.

IMPROVING SOIL. (A Subscriber, J. W.) Lime is too expensive for improving the staple of your soil, nor is it so much needed, as it already contains a bricklayer's rubbish. A thick coating of coal ashes, refuse peat, and drift sand, would be the best of applications, but do not put on the night-soil until the spring. The soil, after being covered with the coal-ashes, &c., will be much benefited by being thrown up into ridges. We do not know the Flour Ball Potato. Chapman's Kidney is an early variety.

HYBRIDIZING. (An Amateur.)—We will give the information desired very shortly.

STEERING SEEDS. (Cincinnati.)—We do not know anything of the plan, but our Correspondent may rest satisfied that it is of no value. No steeping of seed will increase its fertility.

WEEKLY CALENDAR.

M D	W D	NOVEMBER 2—8, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
2	Th.	All Souls. Mich. Terr. begins.	Bushy Winter Cherry.	58 a 6	30 a 4	9 22	6	16 17	307
3	F	Princess Sophia B. 1777. Botanical Society's	Common Primrose.	vii	28	10 23	7	16 17	308
4	S	King Will. III. landed. [Month. Meet.	Strawberry-tree..	1	26	11 29	9	16 16	309
5	SUN	20 SUNDAY AFTER TRINITY. Gun-	Common Winter Cherry.	3	24	morn.	9	16 14	310
6	M	Leonard. [powder Plot, 1605.	Yew.	5	22	0 39	10	16 11	311
7	Tu	Linnean and Horticultural Socie-	Gigantic Furcraea.	7	21	1 54	11	16 8	312
8	W	[ties' Monthly Meetings.	Bluish-green Veltheimia	9	19	3 11	12	16 4	313

ALL SOULS is a day especially set apart by the Roman Catholic Church to pray for the release of all souls detained in purgatory.

ST. LEONARD was a French Christian nobleman of great sanctity, who died about the year 559. Being remarkable for his charity to captives, he is especially prayed to by Roman Catholic prisoners.

PHENOMENA OF THE SEASON—Mr. Jenyns says, that on an average of years, the horse-chestnut becomes leafless by the 2nd of this month,

INSECTS.—The common Flat-body Moth (*Depressaria Ciculella*) is often mistaken for the Clothes

and the lilac by the 3rd. In 1845, the apple-trees and gooseberry-bushes were similarly stripped by the 4th, and on the 5th the cherry-trees were equally bare. The larch-leaves had turned yellow on the 8th, but those of the Lombardy poplar and birch were all off on that day. During the same seven days, the missel-thrush usually resumes its song—about the 2nd, whilst that of the skylark is heard no more after the 5th. The hooded crow arrives about the 7th.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.
2	Fine.	Fine.	—	Rain.	Cloudy.	Fine.	Cloudy.
3	Fine.	Fine.	Fine.	Cloudy.	Fine.	Fine.	Rain.
4	Fine.	Showery.	Fine.	Cloudy.	Fine.	Cloudy.	Fine.
5	Fine.	Showery.	Cloudy.	Cloudy.	Fine.	Cloudy.	Cloudy.
6	Fine.	Showery.	Rain.	Cloudy.	Fine.	Cloudy.	Rain.
7	Fine.	Cloudy.	Rain.	Showery.	Fine.	Cloudy.	Cloudy.
8	Fine.	Cloudy.	Cloudy.	Cloudy.	Cloudy.	Cloudy.	Cloudy.



Moth, occasionally being found in our rooms, and, like that, moving about with great activity to escape from the light. Colour, dull reddish-brown, with a satiny lustre; eyes black and globular; upper wings brown and black, freckled, with three white spots in the centre; under wings yellowish gray. They deposit their eggs in the flower-heads of the carrot, and the caterpillars feed upon its leaves. There are two broods every year—one in August, and the other at the close of October. The caterpillars are of a pea-green

colour, with a darker line of the same down each side and back. Legs, sixteen in number; head brown; body marked with ten black spots. Our cut represents the insect when at rest and when flying. The latter is magnified.

THE Central Board of Health, in a paper containing many excellent recommendations for preserving those who adopt them from the attack of spasmodic cholera, have included in that paper one piece of advice which is most erroneous—for they recommend that fruit, and certain vegetables, should not be eaten.

If this advice were sustained either by past experience or by the opinion of the majority of medical men most deserving of confidence, we should not issue a single sentence in opposition—although we know that a general following of that advice would be the occasion of much deprivation to all cottagers, and of ruin to many market-gardeners. Such deprivation and ruin would demand our best sympathy and efforts for their relief; but we should say they must be endured for the avoidance of a worse evil—the agonies and the multitudinous deaths consequent upon a prevalence of cholera. Experience and medical skill, however, coincide in recommending the use of ripe, sound fruit, and of well-cooked vegetables. It is quite certain that even those who lived exclusively upon vegetables were, during the last visit of cholera to this country, almost entirely exempted from its attacks; and the following observations, made long since by a physician, we are well advised, will be acknowledged as truth by all his brethren whose opinions are now entitled to confidence:

“Though animal food is more nourishing than vegetable, it is not safe to live on that alone. Experience has shown that a diet consisting solely of animal food excites thirst and nausea, occasions putrescence in the stomach and bowels, and finally brings on violent griping pains, with cholera and dysentery.

“With regard to the proportion of vegetable food to that of animal, great nicety is by no means required. It must vary according to circumstances. The vegetable part, however, where nothing forbids, ought certainly to preponderate—and I think in the proportion of at least two to one.

“I am no enemy to good fruit as an article of diet. Fruit should be eaten in the early part of the day, when the stomach is not loaded with food; and it never ought to be eaten raw till it is thoroughly ripe.”

In addition to the above we will only add, that, in the families of very many medical men, we know that no diminution of vegetables in their daily diet is permitted—the only precaution being that the vegetables are not eaten unless thoroughly boiled, and no fruit unless quite ripe and sound. So far are we from wishing to see a good vegetable diet diminished, that we recommend to our readers—amateurs as well as cottagers—the following excellent piece of cookery:—Into two quarts of cold water put three pounds of

pumpkin or gourd, cut into thin slices, peeled, and with all the seeds removed; two large onions, also peeled and sliced, with a small stick of celery cut into very small pieces. Boil these together slowly for two hours and a half; and then, after adding an ounce of dripping, two large table spoonfuls of flour, and of pepper and salt as much as pleases the taste, boil for half an hour longer: stir frequently during the whole of the boiling. This recipe, modified from one previously published, we have from our own cook; and we have the testimony of our own palate that it is one of the most agreeable, and is certainly the cheapest of soups. The pumpkins saved for seed are better for this purpose than those which are less ripe and more watery.

We may as well remove from such of our readers' minds as happen to entertain it, the false prejudice that no vegetable food is so nourishing as the flesh of animals. This is a very great error; and it has been ascertained, beyond all doubt, that their strengthen-

ing or nourishing qualities are in the following proportions:

100 lbs. of	Seeds of Peas contain of nourishing matter	93 lbs.
—	Seeds of French Haricot-bean	92
—	Seeds of Broad-beans	89
—	Wheaten Bread	80
—	Butchers' Meat (average)	35
—	Grapes	27
—	Apricots	26
—	Potatoes	25
—	Cherries	25
—	Peaches	20
—	Gooseberries	19
—	Apples	17
—	Pears	16
—	Carrots	14
—	Strawberries	13
—	Cabbages and Turnips	8
—	Melon	3

THE FRUIT-GARDEN.

THE late frosts have reminded us that we have now fairly turned our backs on mere autumn weather; and the sleety storm or dense atmosphere of gloomy November will begin to remind us "to put our house in order" for the approaching winter. That season will not, however, be spent in vain by those of industrious habits, without which, indeed, no cottager can ever hope to better his condition or that of his family after him. Labour is the capital of the poor man, and a capital which produces abundant interest if rightly applied.

As long as a poor but industrious man is blessed with health, he may bid defiance to the roughest storm, especially if the possessor of a small and highly cultivated plot of ground and a good pig in his sty. Old age will approach, and sickness may come, but the provident cottager has his club to fall back on, together with, generally, some strong and well-trained children to prop his declining years. Such will in general be the ultimate condition of the cottager who has through life performed his duty to his employer, and well cultivated his own garden. In addition, a few pounds in the savings' bank will not be an unfrequent occurrence.

PRUNING.—This is an affair that needs some explanation in detail; and in order to commence and pursue the subject in a methodical way, we will at once begin with one family of fruits, and continue the rest in like manner as occasion offers. Our select lists of *truly useful* fruits will also be continued as opportunities occur.

THE APPLE.—The majority of apple-trees cultivated in the gardens of the cottager or amateur are of the kind termed amongst practical men "dwarf standards." Some also call them "rough espaliers." The latter name is scarcely appropriate, as espaliers are, more properly speaking, trees trained on rails or a trellis. To carry out this dwarfing system, then, by which both the space overhead, as well as below, is economised, a special course of pruning becomes

necessary, commencing with the very earliest stages, of the grafted plant, and only ceasing when the tree, through age, produces little young spray.

In the present case we must commence with the young graft, and we will suppose that it has just been planted. Whatever length it be, or whether possessed of only one shoot or two, it is absolutely necessary to prune them back to about six or eight buds.

In the second year, if successful, the tree, or rather bush, will have at least eight or nine young shoots, some well-placed, and some crossing each other.

Now, pruning as an art truly commences. A selection must be made. The eye should be fixed on about five or six shoots well-placed; that is to say, forming a kind of circle, or at least so disposed as to leave a distinctly open space in the midst of the tree, when all are pruned away but these. This being done, and the eye well determined on a nice form for the future tree, the remainder may be considered waste shoots, and may be instantly cut away, observing to leave nearly half an inch of the base of each shoot. It is well for those not experienced in this matter, to tie a bit of thread or matting on each of the shoots to be retained, for fear of error; for be it understood, we lay much stress on this first selection being made with discretion; on it will depend, in some degree, the neatness of form; and we need hardly remind our readers that neatness of form and economy of space are identical. The selected shoots must now be shortened, and, as a general rule, we may say nearly one-half the length may be pruned away this season,—the object being, under a dwarfing system, to cause the lower part of the tree to develop abundance of spurs, or the rudiments of spurs. If the bushes are left without shortening, the sure consequence will be, that some gross shoots will soon take the lead, and some of these would, in due time, assume the orchard character, and the tree would become so unwieldy, as to do away with, or render worthless, all under-cropping: we need scarcely add that this would not be agreeable to the cottager or amateur, with whom

the old motto, "*Mulum in parvo*," (much in a small space,) is every thing.

The second year's pruning being thus carried out, the tree in the course of the next summer will have completed its full complement of shoots; and after another selection in the next pruning-season, shortening and thinning out will be the principal affair for the next year or two, after which it will suffice to go over ordinary kitchen or baking apples once in two or three years.

GENERAL MAXIMS.—We may for the present conclude the apple-pruning, as to young trees, with a few maxims necessary to be observed on all occasions.

FIRST. In selecting shoots to be retained, always prefer short-jointed and brown-looking shoots, to those which are pale, succulent, and long-jointed.

SECONDLY. In shortening back the shoots that are to remain, always cut back to a bud which promises to *extend the tree*, rather than to contract it, unless the tree be of a very straggling habit.

THIRDLY. Let the shortening back be less every season after the third year's pruning, for the trees by that period will be thrown into shape, and the lower spurs being in a great measure formed, there will yearly be less tendency to produce gross or barren shoots, especially if an occasional root-pruning be given.

The pruning of old trees will form another division of the subject, to which we shall return at an early opportunity.

ROOT-PRUNING THE APPLE.—The apple, as also all other fruits which occasionally grow over-luxuriant, is much benefited by root-pruning; and in order to be explicit, it will be necessary to offer a few words of advice applied separately to each family. Having had some twenty-three years' experience of the immense advantages to be derived by occasionally resorting to this useful practice; and having been, we believe, the first to systematize it, we are the more emboldened to speak at large on the subject. In the first place, we would impress on the amateur or cottager, that a judicious root-pruning *will cause any kind of fruit-tree to produce blossom-buds*, provided that the case is merely one of over-luxuriance, and that the tree is healthy in constitution. This we have proved to be a fact, and one worth knowing in all cases.

With regard to the apple, the process should not be commenced until the plant has been established, for at least three years; to commence earlier, would be to rob the tree of much necessary size. Moreover, to apply it to young trees, which have never attained a considerable amount of luxuriance, is somewhat

trickish, and will certainly tend to produce a premature old age. It is, indeed, on the latter principle that the Chinese produce their famous miniature trees, which, possessing no real utility, can only be accounted vegetable curiosities.

The amateur or cottager's apples are for the most part situate on the marginal borders of the garden; and these borders are generally studded with goose-berry or currant-bushes. In such cases it is difficult to introduce the spade: it is, therefore, well to know in such cases that the roots need not be cut away in a continuous line; the spade may be introduced at intervals,—for wherever a root is severed, therein a corresponding check has been given. It must be understood, that any given root supplies sap to the whole tree, and does not alone influence any particular part. Our practice, however, is, (but then we have nothing on our borders to hinder a free operation,) to throw out a deep trench across the border at right angles with the walk, and to cut away every root which comes beyond that line. We then fill up the trench with fresh soil from the ground close by, which has not been exhausted by the apple; we seldom go farther than four or five strides for fresh soil.

It requires a little judgment to know what proportion of the roots to cut away; and in order to convey as correct an idea as possible, we may suppose the trees thrown into three classes,—they would then stand thus:

First, Trees of moderate luxuriance; *second*, Those which may be termed robust; *third*, Those of what is termed gross habit. We acknowledge that such distinctions appear rather arbitrary; we have, however, no better plan of making ourselves understood. To give a further idea, we would say that the first class will make young shoots on an average a foot in length; those of the second two feet; and the third nearly, or quite, three feet: the latter, indeed, frequently burst into lateral or side shoots, from the young shoots of the same season.

From the first class, therefore, we advise the cutting away about a sixth part of the roots; from the second class a fourth part; and from the third class a third part. It must be borne in mind, that *the extremities of the roots alone* should be cut off, for while we advocate this mutilation, we equally advocate the preservation of the *surface* roots by every possible means; nay, more than that, we recommend their encouragement by extra appliances; of which more by-and-by. We will speak of some routine matters in our next.

R. ERRINGTON.

THE FLOWER-GARDEN.

GENERAL FLOWER-GARDEN.—In all operations that have reference to a future effect, the mind of the operator is in constant exercise. In gardening, this is more especially the case, as the subjects under the cultivator's care all require a certain preparation and constant attention. We hope, therefore, that our readers will constantly keep this maxim in their minds, that something or other requires doing every day. Plants in pits and frames require to be kept clear of weeds and decaying mouldy leaves; to be very moderately watered, protected from severe weather, and plenty of air given them on every fine mild day. All those daily cares must be unremitted, and require great judgment in the application.

WATERING more particularly requires attention at this season of the year. Plants of every kind must not be allowed to become so dry as to destroy the roots; and, to guard against a damp atmosphere, all water ought now to be applied in the mornings, so that the leaves and the surface of the soil may become dry before the evening. The temperature of the water is also a point to be attended to: it ought always to have the chill taken off—that is, never to be used colder than forty-five degrees of Fahrenheit's thermometer.

ALPINE PLANTS.—Many of the plants that grow in mountainous regions, and are known as Alpine-plants, are very beautiful, and may be successfully

cultivated in gardens, either in pots or on artificial rockwork—the latter being the least trouble, and the plants in the most natural situation. As we wish to make the amateur and cottager's gardens as interesting as possible, we strongly recommend our friends to attempt the cultivation of those interesting plants. Rockwork may be formed with flints and scoriae, or, as they are commonly called, clinkers. Where it is plentiful, rough pieces of natural stone may be employed, or all three may be tastefully mixed, and a few rough roots of dead trees can always be used, here and there, with good effect. First, a bank of any kind of earth must be thrown up in the intended form, which should be of irregular outline; then place the flints and other things so as to leave vacancies between the stones: those vacancies should be partly filled up with a compost of leaf-mould, loam, and sandy peat, in equal parts. The aspect of the rockwork, if convenient, should be to the north; as Alpine plants are, in their native countries, during the winter covered with snow—and consequently, in our artificial rockery, should have as little sun as possible in the cold months. The best time to plant them is in the spring—as then they will be well established before the winter sets in. We will shortly give a select list of Alpine plants.

AMATEUR'S FLOWER-GARDEN: WINTER SHELTER.—The winter season being now fast approaching, every means of protecting plants should be in a state of preparation, so that when severe weather actually comes, the different articles for that purpose may be at hand. Plaited straw tents, made in the form of a beehive, are excellent protectives for small half-hardy shrubs, such as young *araucaria imbricata*, some hybrid rhododendrons, and any other new shrub whose powers of resisting frost may be doubtful or unknown.

RUSSIAN BASS MATS, for covering frames, tender trees on walls, and various other purposes, are, after all, the most handy and useful of materials for covering. Two or three thicknesses of these mats will prevent any ordinary degree of frost from injuring the plants usually kept in pits or frames. In extraordinary severe frost an addition of six inches of light straw evenly, and in a thatch-like form, laid on over the mats, will prevent frost from penetrating through the glass, but it will reach the plants through the sides and ends of the frames.

STONE COVERINGS.—To prevent the cold from penetrating by the ends or sides, pile up against them either some litter, or short straw, or, what is better than either, fern or brakes tied up in small bundles and packed closely against the frames. Commence at the bottom with a thickness of nine inches, or a foot, gradually sloping upwards close to the glass, where the thickness should be about four inches. Finish it neatly, so as the glass sheets will easily slide over it. This part of the protection should be done forthwith, so that the plants may be safe whatever kind of weather may ensue. The bass mats come to this country with the ends untied. If used so, they will soon become ragged and loose. Let every mat be tied, by taking three or four of the web and tying them in a knot over the web; cut off the ends neatly and evenly, and put them by in a dry place till wanted.

WALL-CLIMBERS.—Should the amateur have a wall covered with ornamental climbers and choice evergreen shrubs, they may in severe winters be easily protected, by hanging up mats against them, fastening them with hooks or pieces of cloth and nails. All these precautions may appear troublesome and laborious, but the lover of plants will not grudge the

labour and care necessary to preserve his lovely favourites from their grand enemy—frost.

ROOT-PROTECTION.—To protect the roots of plants, whether shrubs, perennials, or bulbs, many things may be successfully used. Short stable-litter, half rotted leaves, fern, tanners' bark, moss, and short hay, whichever may be the most easily attainable, will be found useful. The grand principle is, to use all protectives in time. A single night's severe frost, if unprepared against, will almost render all your after care fruitless.

COTTAGER'S FLOWER-GARDEN.—We hope your gardens are now in neat order; your hedges trimmed; your dead flowers all cut down; your borders manured and dug; and what plants you have too tender to resist the frost, all taken up and placed in some situation where the frost can be prevented from reaching them. All this being done, you may now turn your attention to improvements, and doing all you can to shorten the work of spring. If you do not possess a pit or frame, exert your ingenuity, and look about you to see what you can convert into a winter shelter for scarlet geraniums, fuchsias, double wall-flowers, or any other half-hardy flower you may wish to preserve.

TURF-PIT.—In most country places turf may be procured. With this material you may build an excellent pit. First put a stake at each corner of your intended protective pit, beat the surface where the walls will stand firmly, and then place the first layer of turf down a little broader than you will finish with. The bottom may be one foot broad, and lay upon it turf after turf, gradually lessening the thickness of the walls till at the last layer the width will be nine inches. Your turf-pit should face the south, the front wall should be so much lower than the back as to leave a slope at the ends about the same pitch as the roof of an ordinary house. The depth inside may be at the back two feet and a half, and at the front eighteen inches. The width you will find most convenient about four feet. With this width you can easily reach any plant that may require dead leaves picking off, or weeds pulling up. So far you have done well; you must try what you can get to cover your plant-house in with. If you can afford a few shillings to purchase some ready-sawn wood, and possess a joiner's plane and a chisel, you may with a little painstaking form a window-frame; and provided you cannot afford at present to purchase glass, even cheap as it is, you may procure straw, and weave a covering for each of your frames. Nail it neatly on with a list edging, and you will then possess no bad substitute for glass. Or, which is still better, you may procure some coarse calico, and stretch it tightly over the frame-work, and then procure some cheap linseed-oil, and lay it on the calico, setting the frames up against a wall or paling to dry, and when in that state give it another coating of oil. When this last coat is dry your frame will be ready for use. If you are unable to purchase the wood, calico, and oil, still do not give up this very useful appendage to your garden. Perhaps you can get some poles of trees that have been cut down to thin the young woods in your neighbourhood. These poles cut the proper length and laid over your turf-pit, will answer pretty well to bear up your straw mats. Should the winter prove severe, procure some short straw or fern, and spread it upon the straw mats about six inches thick. It must be a severe frost indeed that will injure the plants through this effectual protection. When the season arrives that you can plant out your preserved favourites, the pit may be turned to many uses: you may fill it to

within a foot and a half of the roof with dung, or any kind of rubbish, over this put six inches of good earth, and plant in it cucumbers, or sow in it early lettuces, radishes, small salad, dwarf kidney beans, etc., so that you may perceive what a useful place your pit will be—well worth all your extra labour.

ARCHED TRELLIS.—If you have still some spare time, you may add a great ornament to your garden at a trifling expense. Supposing you live in the country near to woods, that are felling, or thinning, you might for a trifle get a few long rods of hazel or ash. Place a row opposite each other of the strongest, on each side of the walk, through the garden. Let them stand eight feet apart from each other. When they are all placed strongly in the ground, cut them off even at six feet from the earth, and then bend some of the smaller ones over from side to side, so as to form arches: tie them firmly with tar-band or twine. To strengthen the whole, place long rods, sufficient to reach the whole length of the arches, upon the highest part, and tie them firmly to each arch. If all this be well done, it will last several years, and be very neat and ornamental, when, as it is intended to be, covered with creepers. We shall give a list of suitable plants for that purpose.

FLORISTS' FLOWERS.

THE PANSY.—This almost universally-loved favourite, deserving a place in the amateur and cottager's garden, we will devote this week's part of our labour to its cultivation.

PROPAGATION.—The best plants are obtained by layering. By this term, we mean taking a branch of a plant, bringing it gently down to the earth, trimming off all the lower leaves close to the stem with a sharp knife; having ready a sufficient number of hooked pegs, about four inches long; also, a small basket of fine compost of loam and leaf mould in equal parts, with a little sand mixed amongst it. Then, having trimmed as many branches all round the plant as you can conveniently lay down without crowding them, take one up gently in your left hand, and just

below the third or fourth joint make an incision (with a very sharp pen, or budding knife) sloping upwards nearly half an inch. Put a small splinter of wood in the incision, or cut, to keep it open. This is not absolutely necessary, but for very choice varieties we recommend it. Having made the cut and put the splinter in, bring the branch gently down to the ground; hold it there with the left hand, and with the right take one of the pegs, thrust it into the ground with the hooked part resting upon the branch just hard enough to keep it firm in its place. This part of the operation must be very carefully performed, or the layer will crack off at the place where the cut is made. Proceed with the next, and so on all round the plant, till all the branches intended are layered. Then take some of the fine earth, and with the hand spread it evenly over each, leaving the tops exposed. Close the earth well to each branch thus layered, and give the whole a gentle watering with a fine rose watering-pot. The operation is then complete.

CUTTINGS.—The other mode of increasing good kinds is by cutting, and this is most generally practised. The first thing to attend to is to choose the situation for the cuttings. The north side of a low wall is the best—a wall is better than a hedge, as there is no draught of cold air through it. Stir up the soil with a three-pronged fork, breaking it fine. Then put a layer of four inches of light compost, like that used for layering: upon this, place a thin covering of fine sand. Press the whole gently down with a flat piece of wood; then prepare your cuttings. Choose the weakest shoots for that purpose; the strong ones are too full of sap. Cut them across just under a joint, making them three inches long. A hand-glass will assist them materially in forming their roots. Only a part will grow without the glass, and they will take a much longer time, therefore use hand-glasses. Set the hand-glass on the soil so as to leave an impression, and within that impression with a small dibber, or planting stick, put the cuttings in rows at three inches apart from row to row, and from plant to plant. Then, as with the layers, give a gentle watering, and as soon as the tops are dry, set on the hand-glasses. In about six weeks they will be rooted.

T. APPLEYBY.

WINDOW AND GREENHOUSE-GARDENING.

A HOBBY-HORSE, if fresh, is almost as difficult to manage, at first, as an Arab steed fresh from grass—the restlessness at starting is much the same with both, and each requires some time and management before he can be made to take the road straight forward. But you will probably ask—what has that to do with gardening and pot-plants?—very little I own. The subject, however,—that is giving directions in gardening to new beginners,—is one of my hobbies, and in starting with it fresh last week, it would take any direction but the straightforward course. I intended then to give full directions about watering window and other plants in winter, and not only to give directions, but a reason also, for every rule—for a rule without a reason is a “rule of thumb,” and goes for little. My hobby, however, was so restless that I did not get in a tittle of what I intended to say, and before I had more than broached the subject, the space allotted for me was filled up. I must therefore return to it occasionally, as the subject in hand may happen to suggest; and now about flowers:

CHRYSANTHEMUMS.—The most popular flower in England at this season is the chrysanthemum, and deservedly so, for it fills a blank at this period of the year that no other plant we possess could make up. It requires very little care to get it through the winter; small slips of it planted in a pot, or in the ground, in May will make roots as freely as willow twigs; and the nurserymen sell plants of it coming into bloom cheaper than of any other flower they grow—I mean cheaper according to its merit. Besides, there are many kinds of it, and, like Joseph's coat, they are of many colours. They do not like to be stifled up in a close room at any time, and least of all when they are in bloom. They should be turned outside the window every mild day for a few hours. If they are in a greenhouse, the ordinary management of a greenhouse at this season will suit them capitably; for the doors and windows of greenhouses are now always kept open as much as possible, and that is just what chrysanthemums like. They are also fond of rich manure-water given to their roots, and plenty of it. Those in

a window will require some water every day, and those in the greenhouse every other day, unless the weather is very damp. Although they are strong feeders, and require large doses of water, it is a bad plan to leave water in their saucers all night. To have fine large blooms of the chrysanthemum, some of the flower buds ought to be cut off: in doing this, leave the more forward buds and the latest buds, cutting away the intermediate ones. This will give a longer succession of flowers, besides improving the size of those left.

TREE VIOLETS.—Every one is fond of violets, and if you had room for only three pots in the window, one of them should be a double violet. For seven or eight months in the year, or say from August to April, they should be in the window, and the tree violet is the best sort for pot-culture. The French call it "The Perpetual Violet," which is perhaps the best name for it, inasmuch as that it flowers so freely and so much longer than any other violet. All violets may easily be trained so as to form little trees, as we call them, simply by bringing up a plant with one shoot only. This shoot should be tied to a neat stake, and all the side shoots be rubbed off as soon as they appear, unless you want to increase your stock of them: in that case, the side shoots may be left till they are three or four inches long, and then be taken off for cuttings. If these cuttings are planted at any time round the side of a pot in any light garden mould and watered, they will soon make roots. The best time, however, for increasing them by cuttings is the spring, and when they are well rooted they should be planted in the garden, and watered occasionally through the summer. They will make nice little patches, and begin to flower by the end of August; when a few of them may be taken up in succession, and put into pots to bloom in doors all through the winter. If the tree violet is left to take its own way of growth, it will grow in patches, just like any other violet, without any attempt at forming itself into a

little tree, and that is the easiest way to deal with it, and it is the way it produces the most flowers; but trained up in the tree fashion it looks very interesting, and will live many years. By the time it gets a clear stem a foot or eighteen inches high you may allow the side shoots above that height to grow, and then your miniature tree will be perfect.

BULBS.—Almost any spring flowering bulbs may be potted at this season in light mould; and with only the aid of a common window, they will come into flower six weeks or two months before their usual time, and keep the windows very gay at a period when few plants can be had in flower. Pot snowdrops, crocuses, early tulips, hyacinths, narcissus, or daffodils; in short, as many roots of these as you can procure, or have room for, and I shall give you a full account of how to manage them before they make much growth. It will suffice at present if I say that crocuses and snowdrops may be planted as thick as they will stand in the pot, and an inch under the surface of the soil. Tulips from three to five in a pot that is six inches wide at the top, and planted the same depth as the crocuses: hyacinths are best planted singly, and so are the daffodils, of which one called "Double Roman Narcissus" is the earliest to bloom. They are all to be had cheap enough at the seed shops, and form a large branch of business. Seedsmen are always willing to tell their customers how to manage these things.

GREENHOUSE-PLANTS, now housed in for the winter, may have all the air given them that the door and windows will admit, and some of the windows may be left partially open at night, unless there are signs of frost. In very damp weather it is a good plan to light a moderate fire occasionally in the daytime, to dry up the damp; but let the fire go out before night. The plants, pots, and stages ought always to be kept clean and dry. The nasty green slime you see sometimes on pots is very injurious to plants at this season.

D. BEATON.

THE KITCHEN-GARDEN.

IN this season of high winds and damp cold days, we would earnestly advise the cottager to employ himself and family more in the repair of his tools, and other indoor work, rather than to risk the establishment of rheumatism, or the causing of cholera, by exposure to the weather. One of the chief causes of fever and cholera is being exposed to sudden chills whilst in a state of perspiration. This advice to the cottager is equally applicable to the amateur and his garden assistants.

ARTICHOKES should now receive their winter dressing. Cut away the old leaves close to the ground, but without injuring the centre or side shoots. Fork over the bed, throwing the earth in a ridge about eight inches high, over each row; putting it close round each plant, but being careful to keep the heart free from the crumbs of soil. After this has been done, pile round every plant some long litter or pea-haulm, three or four inches thick; and to keep this from blowing away, as well as to help in preserving the roots from severe frosts, cover over the litter, or haulm, two inches deep with coal-ashes. The ashes may be turned into the soil in the spring, being a manure much liked by the artichoke.

It is probable that many of our readers may believe that the name of this vegetable refers to the fibrous,

almost unswallowable part of it known by the name of "the choke;" but this is quite a mistake. The word artichoke is merely the English mode of spelling its French name, *artichaut*; and this is said by old writers to be a corruption of the Arabic name for it, *alco-calos*, which has reference to the shape of its heads being like that of the pine-apple. The Arabs prize it highly, not only for its edible heads, but its roots as a purgative, and its gummy exudations as an emetic.

ONIONS.—Look over those stored for winter use, and remove all decayed ones as soon as seen, for no putridity is more readily communicated than is that of one onion to another. They will soon become a mass of offensive, mouldy matter, if left with one bad onion among them.

The onions sown in August, to grow through the winter, should be weeded, and thinned to two inches apart.

POTATO, OR UNDER-GROUND ONION, may be now planted, or during any fine weather until the beginning of December. In Devonshire they plant it on the shortest, and take it up on the longest day. Near Edinburgh it is known as *Burn's Onion*, having been introduced there by an officer of that name. It grows in clusters, varying in number from two to twelve, keeps well, is very hardy, and deserves to be more

cultivated. Grow them upon any light, open, rich piece of ground: dig it deep and fine, and when you have dug enough for a row, plant it; thus avoiding any need of treading upon the dug soil. The best mode of planting is to press the root-end of each offset, or clove of the onion gently into the ground, so as to bury about a third part of it; each offset eight inches apart from those next to it; cover each offset with a little heap, half an inch deep, of a mixture of equal quantities of decayed dung and coal-ashes. Let the rows be eight inches apart.

PARSNIPS.—Take up for storing. We gave full directions for doing this in our second Number. The whole crop need not be taken up, but only a portion, as these may be got at easily when those left in the ground are bound there by frost and snow. Those most exposed to frost are always the sweetest, and the lowest degree of cold does them no harm.

POTATOES.—Now, and at any time when fine weather occurs during the month, is the best time for autumn-planting, and we recommend every one of our readers who has a kitchen-garden to try a few rows, adopting the directions we gave in our first Number. Three years' experience enables us to assert without any reservation that it is the best mode of growing this root. The ground need not be lying unproductive all the winter, for a row of coleworts may be grown between every two rows of potatoes, and cut for boiling before the potatoes appear above ground in the spring.

PUMPKINS.—We wish to impress upon our readers the importance of these. Those we have saved for seed weigh full twelve pounds each: they will make, therefore, eight quarts of the soup mentioned in our to-day's editorial—a soup that will not be misplaced at any gentleman's table. Let not a seed-pumpkin be wasted; but let its flesh be thus used. The seed well-dried will keep as well in a paper bag as it would in the pumpkin itself.

CELERY.—Make use of favourable opportunities of applying a good portion of earth to bleach and secure celery against the winter's frost. For doing this, choose the afternoon of a fine day; the first thing to be done is to draw the leaves of each plant quite upright with one hand, and slightly pressing in the top earth with the other. By this means the lower part of the plant is excluded from air and light, and the earth is prevented from getting to its heart, which, if allowed to get amongst its leaves, would admit the wet, causing rot and deformity. Besides, by this treatment a shoulder is formed to the celery-bank, for the new application of soil. Celery is a wholesome vegetable, either eaten as a salad, stewed, boiled in soups, or hoiled whole, and served at table with meat in the same way as cauliflowers and brocoli. Care should be taken even thus early to prepare some easily comestible material for protecting celery against severe frost, such as fern, heath, furze, evergreen boughs, pea-haulm, bean-stalks, reed or sedge, or straw of any kind. This should be applied to the outside of the bank when frost sets in, for if once bleached celery gets frozen through, it is certain to rot very quickly

afterwards. Besides, when frozen through it is inconvenient for taking up when required.

CAULIFLOWERS AND CAPE BROCOLI.—All that are now showing flower, or rather just turning in, should be daily secured, by pulling up the whole plant by root, tying them up into bunches of five or six, according to the size of the plants, and hanging them up in sheds or cellars—thus securing abundance of those useful vegetables for table during the winter months. Young plants of cauliflower, either pricked into pots, pits-frames, or under hand-glasses, should be well attended by airing day and night at all times in favourable weather; the decayed leaves picked off; the surface of the earth well stirred; the slugs well hunted; and occasionally a little dry dust applied amongst them. This addition of dust is most valuable in the winter months, both as a protection against damping, or canker, or frost. Take care to save all the dry, dusty soil, old mortar, or other dusty material, and we will see what useful accounts it may be turned to between this and next March, in the way of preserving vegetation.

BORECOLE AND BROCOLI of luxuriant growth, if not already done, should be checked by either cutting the roots round at about nine inches distance from each plant with a spade, or they may be laid in where growing, or taken up and laid together in a more sheltered situation to check them. The ground from whence they are taken should be well trenched, and laid in rough ridges or sloping banks, to receive the beneficial influence of the weather.

CABBAGE AND COLEWORTS, in every stage of growth, should be kept clear from decayed leaves: the surface of the soil well stirred in dry, favourable weather, and all small plants secured for spring use by being thickly pricked on sloping banks or sheltered situations.

ENDIVE may be secured in turf or other temporary pits, and may be protected with asphalte or light-boarded shutters, thatched wood-frames, fern, furze, or other similar materials. A portion, in succession, may be placed to bleach in a dark shed or cellar, being planted thickly together in sand or earth. Or some may be thus planted in any room or shed, or allowed to stay in a frame or pit, and bleached by being covered with light boards, slates, fern, straw, or any dry material placed on it. Thus keeping a good succession.

PARSLEY.—A few strong roots of this herb should be placed in pots, or in a box, to be placed in-doors, or in some sheltered place, to be in readiness for use when frost and snow set in.

MUSHROOMS, in hot-beds, look well to at this season. Allow no cold draughts or currents of cold air to be admitted. Keep them close, and with a rather humid atmosphere about them. Make successional beds at this season in the warmest and most sheltered situations; beds that have been some time in bearing, and are becoming exhausted, may be invigorated by application of clear liquid-manure, applied no colder than eighty degrees. Make the liquid-manure by soaking sheep or deer's dung in water. JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR OLD GARDENERS.

THOSE who are acquainted only with the writings of modern authors, will scarcely believe how much nonsense was published in the days when printing was

first discovered; and as late as in the sixteenth century, the age when Raleigh and even Bacon lived, the publication of absurdities and falsehoods recommended for adoption in cultivating plants still continued. Few men who knew how to handle the spade could then

do more than make a cross with the pen; and it is not surprising, therefore, that those who were learned and undertook to write of the art of gardening, although of it they knew nothing, were pleased to content themselves with mere translations from the old Roman and Greek writers.

France and Holland had the start of us in obtaining a better knowledge of gardening, for it is well known that in that century our king's table had even such trivial matters as its best salads sent over by the Dutch. The monks in France were, in those days, great delighters in gardening; and as they were the best educated men of the time, those of them who wrote upon gardening were able to give some original practical information. Leonard Mascall was the first to appreciate this in England; and it was no small merit in him to be the earliest translator of one of those French works on gardening.

LEONARD MASCALL was farrier to King James the First, and had a country residence at Plumstead in Sussex. This sentence contains the whole of his history that has escaped to us, with the exception of the fact, that he wrote three separate works on Poultry, Cattle, and Fishing, besides that on Gardening, which we are about to notice. The first edition of this was printed in 1578, and seven other editions of it were published between that year and 1656. The earliest edition we have seen is that of 1592, and it has this explicit title:—"A book of the art and manner how to plant and graffe all sorts of trees; how to set stones and sow peppins, to make wild trees to graffe on, as also remedies and medicines. With divers other new practices, by one of the abbey of S. Vincent, in France, practiced with his own hands; divided into seven chapters, as hereafter more plainly shall appear, with an addition in the end of this book of certain Dutch practices, set forth and Englished by Leonard Mascall."

The Address to his readers is his own, and in these words:

"Each wight that willing is to know
The way to graff and plant,
May here find plenty of that skill,
That erst hath been but scant,
To plant or graffe in other times
As well as in the spring,
I teach by good experience
To do an easy thing;
The pleasures of this thing is great,
The profit is not small,
To such men as will practice it,
In things mere natural."

The directions for budding, as well as for crown-grafting and cleft-grafting, are very particular, and for the most part correct. The drawings, to render the author's meaning more easily comprehended, are sufficiently rude and ill-executed, yet of themselves they afford satisfactory evidence that the art of grafting was well understood. Thus of the implements necessary for its practice, there are drawings of a gouge, pruning-knife, saw, mallet, hammer, with a file and piercer forming its handle, chisel, and scraper for removing moss from the trunk of the tree.

The directions for planting fruit-trees are brief, yet generally worthy of attention. Even at the present day too many gardeners neglect this rule for shallow planting, published three centuries ago by Mascall:—"Plant so that the earth be above all the roots half a foot."

We do not think the worse of our author for concluding with this recommendation:—"Whensever ye shall plant or graffe, it shall be meet and good for you to pray to God to increase and multiply and

replenish the earth." It puts us in remembrance of an old kitchen-gardener, Paul Somers, who never put the finishing touch of his spade to any job without saying, "Paul plants, but God gives the increase."

MY FLOWERS.

(No. 3.)

NOVEMBER is usually called the gloomiest month in the year,—and so it is to many persons: but to the lover of the country and the garden it is one of great interest. How often have I stood planning improvements among my borders and clumps during the warm dry summer months, wishing to remove some shrub, close up some awkwardly-placed bed, form another in a more striking spot, or clothe some bare-looking stem with honeysuckle or ivy, and have said aloud, "How I wish November was come!" Garden lovers disregard the bleak winds and chilly rains that shut up "hot-house" plants,—they forsake the fireplace and worsted-work of their shivering friends, thinking only of the "charming weather for transplanting," which may now be done safely and agreeably, for the ground is soft, and the trees still sufficiently leafy, to allow us to judge of the effect of our alterations. With feet protected by Indian-rubber shoes, hands guarded from dirt and scratches by a pair of strong housemaid's gloves over one of old kid, I am sure a lady who loves her garden will enjoy her November labours quite as much as the effect of them in June and July.

Evergreens form the chief beauty of a country garden at all seasons of the year; their rich, deep green foliage in the glare of summer is refreshing to the eye and delightful to the feelings; but in winter, when other leaves wither and fall, how pleasing is their luxuriant verdure and useful shelter, screening the gables of out-buildings, and the stems of leafless trees, making us almost forget that summer is gone once more. Most of the common garden evergreens love a strong soil: they will exist on chalky soil, but not in full beauty. The laurel, Portugal laurel, etc., should not be suffered to run up very high, which they will do if pleased with their situation, for then they become bare-stemmed and scrubby. Head them periodically, cut out long bare arms, and keep the plant close and compact. Laurel stems make very good garden-seats, and last a great while with care. Take them under shelter during the winter; neglecting this precaution is the reason why garden-chairs fall to pieces in a year or two. When boughs of trees are sawn or lopped off, the stumps should be trimmed off smooth; if left jagged or rough, the wet enters, and kills, or injures them much. Evergreens, indeed all trees, should be taken up with as large a ball of earth round their roots as possible. Ladies frequently fail in planting shrubs, because they are apt to scoop out a hole in the hard ground, squeeze in the roots without giving them room to move, and then pressing in the earth upon them with their foot, as if the plant might jump out and run away. This should not be: let the hole be dug deeper and larger than the roots of the shrub, chop the earth at the bottom, that the fibres may pass through it, and let the roots lie as comfortably as the ornaments in your jewel-box, that none may be crushed or broken. Nothing hinders the growth and beauty of the plant so much as having its roots confined. Layers may now be made, but remove them as soon as they have rooted. Layers were made some years ago from a beautiful Portugal laurel in my garden, and forgotten:

in two or three years the shrub looked sickly, its leaves became pale and curled, and portions fairly died. On a close examination we discovered that the layers had shot up into strong plants, and the exhaustion they had produced in the old shrub was the reason of its decay. They are removed, and I hope the parent plant will recover.

The laurestinus, the box, the ivy, and the bay-tree are beautiful shrubs. The box is very fragrant after rain, and the bay is very spicy and useful. I have seen it grow into a tall tree in a warm sheltered situation; but every house and cottage should have a plant, however small, to prevent the use of the poisonous laurel-leaf in puddings and custards, if not for its beauty and sweetness.

I wish cottagers would plant evergreens more generally than they do: they are beautiful in themselves, reminding us too, of God's love in pleasing our eye, as well as sheltering the little homeless birds, when their nests are cold and wet, and the wind alone is left to sing among the boughs; and they are useful and ornamental in screening unsightly objects, such as ash-heaps and dunghills, and the shed where we almost always see the door swinging open, breaking the hinges, and tubs, and pans, and other little things lying untidily about. Now these might all be kept out of sight by two or three evergreens, carefully placed, which would take up no room, make the cottage look snug and warm, and lead us to hope a neat, well-ordered family live within.

If any hardy geraniums should still be left in the open borders, cover about their roots thickly with coal-ashes; cut them down to within a few inches of the ground; wrap each stem thickly round with wool, and tie it firmly on: leave them quietly covered with their warm cloaks, and release them, when the frosts are over. Sometimes it is difficult to find windows where these beautiful plants can be kept through the winter. In cottages, and small residences, this is often the case. Then take them out of their pots about the end of October, or beginning of November, cut off all the leaves; shake off the soil, and wrap them up well in moss: tie them together, and put them where frosts cannot reach them. In the spring, cut off the ends of the roots, and pot them in good mould. These little simple operations are highly interesting to a lady, who cannot command a green-house; sometimes, not even a window with comfort to herself, or others; and enable her to enjoy, without much difficulty, the pure and exquisite pleasure afforded by the cultivation of flowers. It is almost the only pleasure, unattended by a *sting*. Our finger may be pricked by a thorn, it is true, but our hearts will not be pierced by a sorrow.

COTTAGE AND ALLIEMENT GARDENING.

(No. 5.)

BY THE EDITOR.

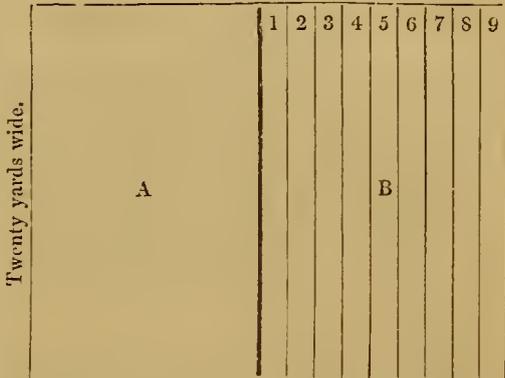
SOWING should always be in drills, for although it is a little more trouble at the time, it saves much more when the periods arrive for thinning and hoeing; besides which, much less seed is required for drill-sowing than for sowing broadcast. Plants in drills also grow better than when without any orders as they are when raised from broadcast-sowing, the air and light being enabled to get to their leaves more freely.

ROTATION OF CROPS.—Never let the same kind of crop grow twice in succession on the same piece of ground. If you grow cabbages and brocolis for two

or three years following on the same bed, they will become diseased, club-rooted, and unproductive. It is most important to obtain large crops, that the ground should bear one after the other crops differing as much as possible from each other. We are indebted to Mr. Errington for the following directions for cropping a garden thirty-one yards long and twenty yards wide. This being rather more than a rood, or eighth of an acre, it will be very easy to adapt the directions to any garden of a similar size, though of a different shape, or indeed to any other sized garden.

Divide the garden exactly in half, as represented in the accompanying diagram, where one half is marked A, and the other B.

Thirty-one yards long.



These divisions are to be worked alternately; that is to say, the plot A, which is to be all potatoes (two-thirds of late and one-third of early kinds) in 1849, will be occupied in 1850 by the series of crops named for B in 1849, according to the subdivision references—thus B next year (1849) will be potatoes, two-thirds of later kinds planted in drills thirty inches apart, in order to receive green kale, Brussels sprouts, or any of the cabbages, savoys, etc. between them. These cabbages, etc., being plants from seeds sown in the end of February for this purpose, on subdivision No. 9, which is set aside for such purposes. The other third, A, to be early kidney, or other early potato, set in the end of February at usual distances, to be dug up in the beginning of July, and succeeded by transplanted Swedes, sown for that purpose on subdivision No. 9, in the middle of April.

The half B is to be divided into nine equal compartments or subdivisions, as follow:

Nos. 1, 2, 3, 4, for horn carrots, sown in February and March, and to be taken up and succeeded, in the end of July, by common turnips.

Nos. 5, 6, to be sown with parsnips in March, but they admit of no succession worth notice, for they remain in the ground until November.

No. 7, sown with beet in March, no succession worth notice.

No. 8. Onions to be taken up in September, and the ground planted with cabbages, savoys, etc.

No. 9. Surplus bed for miscellaneous matters, such as seed-beds of various things—half a dozen Victoria rhubarb plants, scarlet-runners, etc.

POT-HERBS grow as edgings, or on one end of No. 9.

PEAS to be sown round the outer edges of the plot B, in a single row.

BROAD BEANS plant round A, in a row.

N.B. The two latter crops would change places annually. It was thought advisable to adopt mixed

cropping in the case of the potato, the present position of which is so precarious. The greens, therefore, of which kale is one of the chief, may be planted between the wide rows of potatoes in the beginning of June.

If early cabbages are wanted, have one subdivision less sown with horn carrots, and plant No. 1 with those cabbages. It appears, however, to be good policy to increase the amount grown of the best keeping or store roots.

Lettuces and spinach may be grown on part of No. 9; and Jerusalem artichokes in any nooks and corners under the hedges. A lettuce may be stuck in among other crops wherever a blank occurs.

HARDY AND GREEN-HOUSE PLANTS LATELY INTRODUCED AND WORTH CULTIVATING.

JASMINUM NUDIFLORUM (Naked-flowered Jasmine).—This is a hardy trailing plant, introduced from China. Its flowers, which are yellow, continue as late as December. It prefers a rich, sandy soil, and is easily propagated by planting half-ripe cuttings of the young branches, about August.—*Paxton's Mag. of Botany, etc.*

FUCHSIA SPECTABILIS (Showy Fuchsia).—This most beautiful of all the fuchsias is a native of the mountains of Peru. It requires the shelter of a greenhouse. Its flowers are large; and are partly rich red, and partly crimson. It requires the same culture as other greenhouse fuchsias.

CERASTOSTEMA LONGIFLORUM (Long-flowered Ceras-tostema).—This half-hardy evergreen comes from the mountains of Peru. Its flowers are purple. It is easily propagated by cuttings, and flourishes in a sandy loam mixed with a little peat.—*Gardeners' Chronicle.*

CLEMATIS TUBULOSA (Piped Clematis).—This is a hardy herbaceous climber, from the northern provinces of China.* It is the most distinct from every other, and the most beautiful of all the clematises. Its flowers, which are blue, appear in August. It is easily propagated by cuttings, and requires a rich, light, sheltered border.—*Hort. Society's Journal.*

HINTS FROM OUR CONTEMPORARIES.

MR. PORTAL'S ALLOTMENT TENANTS.—On Friday, the 13th of October, Melville Portal, Esq., accompanied by C. Edney, Esq., met his allotment-tenants at the National School, Whitechurch, Hants, where an excellent supper was provided, consisting of roast and boiled beef, and strong beer. 114 occupiers having sat down, and done ample justice to the good things of this life, the cloth was removed, and Mr. Portal proposed the health of the Queen, which was drunk with the usual honours. He then proceeded to distribute the prizes awarded by the judges to the successful competitors, as follows:

* *Herbaceous*—All plants are called Herbaceous of which the stems die annually.

For the best beans, 5s., to Charles Tanner; 2nd ditto, 2s. 6d., Thomas Tammage; 3rd ditto, 1s. 6d., D. Radden. Best peas, 5s., to George Martell; 2nd ditto, 2s. 6d., W. Hopgood; 3rd ditto, 1s. 6d., Charles Fox. Best cabbage, 5s., to Henry Tanner; 2nd ditto, 2s. 6d., Charles Golding; 3rd ditto, 1s. 6d., Joseph Grace. Best onions, 5s., to James Pavey; 2nd ditto, 2s. 6d., Joseph Palmer; 3rd ditto, 1s. 6d., John Rampton. Best parsnips, 5s., to Samuel Hunt; 2nd ditto, 2s. 6d., Robert Kingsbury. Best carrots, 5s., to Charles Churchman; 2nd ditto, 2s. 6d., David Dolton; 3rd ditto, 1s. 6d., Charles Lee. For the best cultivated allotment, 5s., to Joseph Grace, George Shaw, and George Tolfree; 2nd ditto, 2s. 6d., Robert Kingsbury, Charles Fox, and James Stubbs; 3rd ditto, 1s. 6d., William Hopgood.

After the prizes had been distributed, Mr. Portal proposed the health of the judges, (Mr. G. Gaiger and Mr. C. Taylor) which was suitably acknowledged by those gentlemen, who suggested several instructive hints on the cultivation, cleaning, and manuring of allotments.

Mr. Portal then rose and said that since last year he was happy to inform them that their friends were increasing, as several gentlemen had come forward and handsomely subscribed to the Prize Fund; he therefore begged to propose the health of the donors, which was drunk with three cheers.

Mr. Edney, in reply, highly commended the allotment-tenants for the luxuriant appearance of their crops, and the superior manner in which their gardens had been cultivated. He wished them prosperity, and hoped they felt grateful to their generous Benefactor. He should now propose the health of a gentleman which he was sure they would drink with the greatest pleasure; that gentleman was Melville Portal, Esq. The toast was succeeded by a burst of cheers, which lasted for several minutes.

Mr. Portal thanked them most kindly for the handsome manner in which they had drunk his health. He felt the greatest pleasure in meeting them on the present occasion; he had never seen finer carrots and parsnips than those exhibited this year, and their onions were of a magnificent size; he was also pleased with the appearance of their allotments. Although he was sorry that circumstances had prevented him from giving them that attention he had done the preceding year, yet the interest he felt in them was not the less; and trusted that he should soon procure more land, and double the number of allotment-tenants, as nothing would give him more pleasure than to see every cottage in the parish with a garden. It was his sincere wish that they might be comfortable, contented, and happy.

The health of Mr. and Mrs. Johnson was then proposed, and drunk with three cheers. Mr. Johnson, in reply, thanked them for their civility, and bore testimony to the good feeling subsisting between them.

Mr. Portal then retired, and was heartily cheered as he left the room. The meeting shortly after dispersed in an orderly manner, highly pleased with the evening's entertainment.—*Hampshire Chronicle.*

TO CORRESPONDENTS.

ROSES (*An Inquirer, B. of England.*)—We will answer your queries next week.

SAWDUST (*A Subscriber, Waltham Cross.*)—Never mind those who tell you that your decayed sawdust is too sour. It will certainly improve your stiff cold loam. One of the best of composts is made by thoroughly mixing a busbel of common salt and a quarter of a busbel of lime with each one-horse-cart load of decayed sawdust. The most decayed parts of your sawdust would do well for your rosary.

OTHER CORRESPONDENTS, too late for even particular acknowledgment, shall be answered next Thursday.

WEEKLY CALENDAR.

M D	W D	NOVEMBER 9—15, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun	Day of Year.
9	TH	PR. WALES B. 1841. Lord Mayor's	Bluish-green Velthe-	11 a 7	17 a 4	4 31	13	15 58	314
10	F	Bunting's note ceases. [Day.	Scotch Fir. [imia,	12	16	5 53	14	15 52	315
11	S	St. Martin.	Weymouth Pine.	14	15	rises.	0	15 46	316
12	SUN	21 SUNDAY AFTER TRINITY.	Grape-like Tritonia.	16	13	5 a 57	16	15 38	317
13	M	Britius. Larch leaves fall.	Bay-tree.	17	12	6 52	17	15 29	318
14	TU	Apricot leafless.	Portugal Laurel. [foot	19	10	7 55	18	15 20	319
15	W	Machus. Beech leafless.	Sweet-scented Colts-	21	9	9 1	19	15 10	320

ST. MARTIN was first a soldier and then an ecclesiastic—dying Bishop of Tours, in France, in the year 397. This day, known to our forefathers as Martinmas, or Martlemas, was the time when they cured bacon and beef for winter store, and was a time devoted also to festivity. More than one old ballad refers to

“Gried sitches of some smoked beeve,
Hung on a twisted wythe since Martin's Eve;”

as well as to the merry doings of those jolly days in which,

“When the daily sports be done,
Round the market cross they run :
'Prentice lads and gallant blades,
Dancing with their gamesome maids—
Till the Beadel, stout and sour,
Shakes his bell and calls the hour :
Then farewell lad and farewell lass
To the merry night of Martlemas.”

ST. BRICE (Britius) was a pupil of St. Martin, succeeding him in the Bishopric of Tours, and dying in the year 444.

INSECTS.—The Winter Moth (*Cheimatobia Brumata*) is the cause of more destruction to our fruit



MALE AND FEMALE.

November and until the end of January. Their upper wings, when opened, measure across about one inch and a quarter; but during the day they look much smaller, for they fold them so as to form a triangle, and have their feelers or horns (antennæ) turned back over them. Those wings are pale gray, marked with various darker waved lines. The under wings are grayish-white, often having a notched line crossing their centre. The body, delicate and tapering, is yellowish-gray. The female crawls to the top of a tree and deposits her very small oval eggs upon the blossom and leaf buds, as well as upon the shoots. She will lay from 200 to 300 eggs. The caterpillars and the buds come to life together; at first they are gray, and scarcely thicker than a horsehair, but they cast their skins, and finally become of a yellowish-green colour, shining, and with a blue line down the back. On their sides are two yellowish-white lines. The apple buds are their favourite food; but they destroy without difficulty the leaves of the hawthorn, lime, hazel, rose, elm, willow, and hornbeam.

ST. MACHUTUS, or ST. MALO, was of noble British birth, but became bishop of Aleth, in France, where the town of St. Malo is named after him. He died on this day, in the year 630.

PHENOMENA OF THE SEASON.—One of the peculiar natural events of this period of the year is the congregating together of small birds. It must be for the pleasure they derive from the society; for they neither are more capable of defence, nor warmer, nor better fed by being thus in company. Remarkable among these congregational birds is the Long-tailed Titmouse. “We have no bird more distinguished than this for its family association; he is never seen alone, but continues with his offspring, which is a very numerous one, from the time of hatching till the final separation in spring. They seem the most restless of little creatures—being all the day in a course of progression from one field to another; flitting through the air like a ball of feathers, or threading the branches of a tree or bushes of a hedge, following each other in a little stream. Their food is insects, which they find under the mosses on the branches. Their nest is like a bag, covered on the outside with moss, and so profusely lined within, that the young ones appear almost smothered in a feather bed.”—T. T.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.
9	Cloudy.	Cloudy.	Frost.	Fine.	Fine.	Fine.	Fine.
10	Cloudy.	Rain.	Rain.	Rain.	Fine.	Cloudy.	Frost.
11	Fine.	Rain.	Fine.	Rain.	Rain.	Cloudy.	Cloudy.
12	Rain.	Rain.	Frost.	Rain.	Fine.	Cloudy.	Rain.
13	Fine.	Rain.	Frost.	Rain.	Fine.	Cloudy.	Fine.
14	Rain.	Fine.	Fine.	Rain.	Fine.	Fine.	Cloudy.
15	Frosty.	Rain.	Frost.	Cloudy.	Fine.	Cloudy.	Cloudy.

and other trees than almost any other insect; for no weather is sufficiently severe to injure either them or their eggs; and the caterpillars, in the early spring, will feed upon the opening buds and leaves of almost every kind of tree. The females being without wings, may be prevented ascending our standard fruit-trees by smearing round their trunks a band of tar (as directed last week for the Lime-Jooper); but this must be renewed, as it dries, every two or three days. The male moths begin to fly about just after sunset during

EACH day that a man lives, and reads his Bible, he may more and more find reason to acknowledge that everything in that book is full of truths, and that each of its sentences has within it knowledge well worth the seeking for. When Job (xxxviii. 22) talks of “the treasures of the snow,” and of “the treasures of the hail,” there is much more reason for that designation than meets the eye in the words. Modern science has shown, that in those frozen deposits from the clouds is a superior quantity of ammonia, and that with this they most evidently benefit vegetation.* The protection from severe winds afforded to plants by a covering of snow, and the beauty of its crystal-

line forms might be appropriately considered as a portion of its “treasures,” yet not so justly as the really manuring quality it possesses. Then again, when Abimelech had destroyed the city of Shechem (Judges ix. 45), he “sowed it with salt;” and this probably to intimate that its present ruin was designed to be the occasion of future benefits, as the salt would destroy rank herbage only to be succeeded by a herbage finer and more valuable. That the fertilising powers of salt were known to the Israelites seems certain from that passage in St. Luke (xiv. 35) where injured salt is said to be “neither fit for the land nor yet for the dunghill.” Modern experience, at all events, justifies the inference; for salt, judiciously applied, is found to be a highly beneficial manure,

* Our Cottage friends will understand what is meant by ammonia when we tel. them that it is the active part of spirit of hartshorn.

whether sown alone over the soil or mixed with dung and other matters as a compost.

We have used salt as a manure for the last twenty years, and believe that it may be sown over the entire garden, with advantage to every crop it may contain, whether fruit, flower, or kitchen vegetable. These general sowings should be made often, and small quantities applied at a time: six times a year, at the rate of a peck to each rood, or eighth of an acre, each time, would not be too often nor too much. If sown over the garden in the evening, it would add to its other benefits the destruction of many slugs which are then prowling about. Some crops are benefited by a much larger application of salt, and among these are asparagus, sea kale, beetroot, cabbages, and potatoes.

Asparagus and sea-kale are benefited extraordinarily by having salt strewed, twice every year, so thick about them as to make the surface of the soil perceptibly white; namely, in April and July. Beetroot, and all the cabbage tribe, are improved by having it sown over the soil about them so soon as the young plants begin to grow vigorously, but not in a quantity greater than at the rate of three pecks to a rood.

We have thus entered upon the consideration of the value of salt as a garden manure, in answer to more than one query from correspondents; but we must refer those who wish for fuller information to Mr. Cuthbert Johnson's "Essay on the Uses of Salt." They will there find arranged information from practical men relative to its application to most cultivated crops. It contains many letters from experienced gardeners, showing that salt is a boon not only to the market-gardener, but to the florist. Among others is a communication from the late Mr. Hogg, florist at Paddington; and from his letter we will, in conclusion, make this extract:

"From the few experiments that I have tried with

salt as a garden-manure, I am fully prepared to bear testimony to its usefulness. The idea that first suggested itself to my mind arose from contemplating the successful cultivation of hyacinths in Holland. This root, though not indigenous to the country, may be said to be completely naturalised in the neighbourhood of Haarlem, where it grows luxuriantly in a deep sandy alluvial soil; yet one great cause of its free growth, I considered, was owing to the saline atmosphere. This induced me to mix salt in the compost; and I am satisfied that no hyacinths will grow well at a distance from the sea without it. I am also of opinion, that the numerous bulbous tribe of amaryllises (especially those from the Cape of Good Hope)—ixias, alliums (which include onions, garlic, and shalots), anemones, lilies, antholyza, colchicum, crinum, cyclamen, narcissus, iris, gladiolus, ranunculus, scilla, and many others, should either have salt or sea-sand in the mould used for them. I invariably use salt as an ingredient in my compost for carnations; and I believe I might say without boasting, that few excel me in blooming that flower."

WE have been asked to record the deaths of gardeners and others who have been distinguished for the practice or love of horticulture; and we shall most readily accede to the request, if our subscribers will furnish us with a slight biography of the deceased parties. We consider such a tribute due to departed merit, and we would gladly hold up their examples for imitation.

A MISTAKE having been made by substituting one wood-cut for another, at page 21, our next will be a Double Number, in which we shall give (of course without extra charge) a fresh leaf to substitute for the present pages 21 and 22.

THE FRUIT-GARDEN.

ECONOMY OF SPACE IN SMALL GARDENS.—In looking over small gardens, a variety of plans, or modes of setting out affairs, may be perceived, most of them based, of course, on the proprietor's ideas of economy of space. This, indeed, is the true basis of the whole affair. In some parts of the country it is customary to throw up a sloping bank all round the garden. In others this slope is only admitted on the south, or perhaps on the east side.

SLOPES.—The practice of forming slopes most likely originated with the cultivation of early potatoes, which began to extend so rapidly some thirty years since. Be that as it may, the slope in cottage-gardens is at the present day a somewhat questionable mode of procedure in point of economy of space; more especially since the potato-crop has become so precarious. For, in the first place, since there must be an exterior walk, why not next the hedge? Here there would be no waste of ground; for as the hedge must be

dubbed (trimmed), a little space is absolutely necessary for this operation. How often have we seen a narrow slope with a huge and coarse hedge at its back. On this slope there would be three or four rows of potatoes or other crops; and one half the slope towards the hedge was comparatively worthless. The roots of the hedge kept the soil exhausted for a yard in width. The dubbing had been performed when the crops were in full vigour. A gawky lad, perhaps, had been set to clear away the dubbings; and what between the mauling of the leaves and stems of the crops above, and the opposition of the roots of the hedge below, one half the crop next the hedge was a failure. Besides, such slopes always require extra manure to compensate for the sucking of the hedge-roots.

PLANTING TO SAVE SPACE.—Now there is another view to be taken of this affair in conjunction with the above, and that is, that if apple or other fruit-trees

form the first crop next the hedge, with only a walk of some four or five feet between, the ground which serves for the walk serves also for the apple roots, which will insinuate themselves beneath the walk in all directions: here then there is no ground lost. A hedge there must be, and there must be a walk; but the walk is as much occupied in maintaining the apples as though it were cultivated soil.

We hold it to be good economy in small gardens to plant the gooseberry-bushes between or beside the dwarf apple-trees. We have no space now to show why, but we will return to the question shortly, when we will dot out an arrangement of the kind. In the mean time we would merely suggest that, under a well-arranged border of the kind there would be no occasion for resorting to that worst of all practices,—digging annually between useful fruit-trees, in order to obtain a few stunted cabbages. By our plan the amount of border and walk appropriated to the apple and the best fruit would be entirely occupied by their roots, and a little patience and perseverance in the system would soon show that it could not be better occupied. We have now merely touched on one point of economy of space, and as weeks roll away we hope to pursue the subject in all its bearings.

PRUNING THE GOOSEBERRY.—To commence with the cuttings, we would observe that these should be as strong as possible, and about twelve or fourteen inches long. All the buds should be pruned clean away, with the exception of the topmost four, previously to planting. The cuttings may be put in any time from November to the beginning of February, choosing a shady border for them. They should be in rows a foot apart, the cuttings about six inches apart. Nurserymen plant thicker; the cottager, however, will do well to have a little more room, for thereby his young plants will be stouter. By the next autumn there will be at least two good shoots on each cutting; two good ones will be enough, and these must be pruned down to about four eyes or buds on each shoot. Unless *particularly* wanted to plant in their final stations, they should, by all means, remain another season in the cutting-beds, they will then be strong bushes, and deserving a permanent place. Let their stations, then, be prepared by the middle of October, if possible, and let them be pruned shortly before they are removed. In this pruning, the first point is to select five or six of the best-placed shoots as to form, setting them out like a punch-bowl. All that interfere with this form may be cut away, and the remaining shoots shortened, this season, about half their length. In another year, with a little attention in the way of watering, if necessary, in May or June, and a freedom from the depredations of insects, they will be fine bushes, and will have produced a few nice fruit. Now then comes the profit. They will now be full of fine shoots, some drooping outwards, and many crossing each other in all directions. In November they may receive their pruning, which will consist in removing all the worst cross-shoots, and in keeping the middle of the bush still somewhat open. Dangling shoots may have as much of their top pruned away as will prevent their touching the ground, and even upright shoots may have as much cut off as appears of a weakly character. The pruning of the following seasons will be much of the same character, still keeping the middle of the bush much more open than the outside. As a general rule as to the distance

at which the bearing shoots may be left, we may merely observe, that in a well pruned bush no two shoots will by any means touch, but stand apart quite distinct. Badly pruned bushes are both less productive and much more difficult to gather the fruit from than those which are done in a workman-like manner. As the bushes get older, and show signs of wearing out, the knife must be used more liberally; indeed whole limbs of old wood will require occasionally to be removed, in order to throw the powers of the bush into a closer compass.

STRAWBERRIES.—If nothing has been done to the strawberry plants, let them be gone over, and all unnecessary runners removed; a little old manure may be scattered through or around the plants. Do not, however, cut away any of the principal leaves of the plants which remain; we have known the crowns nearly perish by this foolish exposure. These must remain on rough as they are until the early part of February, and then they may all be cut down and cleared away.

RASPBERRIES.—These should be pruned as soon as possible. Leave about five canes, strong ones, and cut them at different lengths,—say two at four feet, two at three feet, and one or two at two feet,—this keeps the young spray divided and equalized.

FIGS.—Where the amateur has fig-trees, the late fruit should be stripped clear away, and some covering applied towards the end of the month. Ordinary garden-mats, clean straw, or even old newspapers, presenting a continuous facing, will suffice. Perhaps the best plan is to stick spruce-fir branches or laurel-shoots all over them, with the points downwards, like thatching.

GENERAL PRUNING.—It is well to prune all bush-fruit in the end of the year, also vines. But figs, apricots, peaches, and nectarines may be reserved for spring-pruning. The same may be said of some plums and some kinds of pears, which are apt to bloom on the young wood, and the blossom-buds on which cannot be well distinguished until they swell in spring.

APPLES AND PEARS.—The pruning of old apple or pear-trees in orchards may be reserved for winter work. For this and every other kind of pruning we will give particular directions as space occurs.

DRAINING.—We must beg most emphatically to point to the benefits to be derived from draining on stagnant or adhesive soils, especially at this period. We need say little about modes of carrying out such purposes; depth, however, is a consideration, and about this the agricultural world is much divided at present. For cottage-gardening we would say, take care to drain deep enough; for if a fault at all, it will be one on the right side. The beneficial effects of draining are nowhere sooner manifest than amongst fruit-trees. Whenever moss abounds on their stems, stagnation is plainly pointed out, and draining can scarcely be wrong. It is all very well to talk of scraping the moss off the bark; the surest way, however, to get rid of the mushrooms, according to an old adage, is "to remove the midden." In accomplishing these matters, it is worth consideration whether a preventive drain can be introduced; this will frequently save both labour and material in the end. We will recur to this important subject on a future occasion.

R. ERRINGTON.

THE FLOWER-GARDEN.

THE SHRUBBERY.—A good collection of hardy ornamental evergreen and deciduous shrubs is very beautiful if well managed. In general, the appearance of the shrubbery is far from being so interesting as it might. We see the shrubs growing in one shapeless mass, all run together, with the stronger overbearing and often destroying the weaker. This ought not to be. Every shrub ought to stand quite clear of its neighbours, and should have sufficient room to show its character. Some have naturally round heads, as, for instance, the Portugal laurel and arbutus; others are spiry, as the Chinese arbor vitæ and the Swedish juniper; a third kind partake of both characters, and form pyramids, as the holly and the bay-tree; whilst a fourth are mere spreading bushes, as the rhododendron, laurustinus, aucuba, common lilac, syringa, and berberies of various sorts. In planting a shrubbery, all these characters ought to be borne in mind, and the space for each shrub allowed accordingly. For present effect it may be desirable to plant more than can possibly stand on the ground when the shrubs are fully grown. Too often this is done so as to render it difficult to thin them out afterwards, to the satisfaction of good taste. We would, therefore, recommend the planting first all those that should be left finally to stand, and, in order that there may be no mistake about the matter, to have all their names written in a book kept for that purpose, with numbers corresponding both in the book and on tallies driven into the ground. The spaces between those shrubs destined to remain may be filled up, agreeably to the fancy of the proprietor and planter. A few tall standard roses, for instance, in the back ground, with half standards near the middle, and dwarfs in the front. These would be very ornamental till the shrubs fully took up their space. A few hollyhocks, dahlias, and other late-growing perennials also might be judiciously planted to fill up for a year or two.

Roses should never be planted in a shrubbery as shrubs intended to remain permanently, the management they require being so different from all other shrubs. They will not flower well without pruning and manuring every year;—operations which cannot be well performed if they are used as permanent plants in a shrubbery. Roses, therefore, ought to be grown in a border or garden, entirely to themselves; and such is their variety of character, time of flowering, and colour, that a rose garden is always interesting for at least seven of the best months in the year.

AMERICAN SHRUBS.*—There is another class of shrubs which ought to be grown by themselves—we mean those usually denominated "American." These ought to have a garden, or at least a bed or beds, devoted entirely to them. They require a peculiar soil, which is one grand reason why they should be together. Amongst them we usually grow hardy heaths and azaleas, for the same reason—they require this peculiar soil: that soil is sandy peat, without which those shrubs do not thrive and flower satisfactorily. The common rhododendron is, we believe, an exception to this general rule, and might be planted in the general shrubbery as a permanent inhabitant; but even this shrub ought to have a pretty good portion of heath mould at the first, to encourage its early growth.

* *American plants.*—These include many different species, but all agreeing in requiring a light peaty soil and much moisture. Among them are various kinds of an ironwood, azalea, daphne, genista, hydrangea, magnolia, rhilus, robinia, rhododendron, spiræa, vaccinium, viburnum cistus, and many others.

THE AMATEUR'S FLOWER-GARDEN: ROSES.—In the third Number we gave a small list of roses for the amateur and cottager's garden; we shall this week give a few hints on their cultivation, and shall divide the subject into four heads:—1st. Soil and situation; 2nd. Planting; 3rd. Pruning; 4th. Propagation:

SOIL AND SITUATION.—The best soil for the rose is a rather strong loam; the deeper it is the better. It should also be dry at the bottom, and if not so naturally, should be well drained. Such land as will grow good wheat or good hops will, with proper management, grow fine roses. The soil, then, should be of a brownish yellow colour, of an open texture, and having a dry subsoil. Next, it should be rich to grow them fine: if not already so, it ought to have thoroughly decayed dung added to it. A portion of super-phosphate of lime (bones dissolved in oil of vitriol) will be of great benefit to them—a manure that may be had of any respectable manure dealer. The situation of the rose-garden ought to open to the south and east, but sheltered from the north and north west winds. Tall beech or hornbeam hedges are the best shelter against gales blowing from those points. Roses should not be planted so near trees as to be overhung by them, as the drip from the trees will prevent them from thriving, and injure the flowers.

PLANTING.—The best season for planting those lovely flowers is the early part of November. They will succeed tolerably even to the middle of March, but not so well as in the autumn; for if planted then the roots immediately begin to grow, and are during all the open weather attaining power to put forth shoots more strongly in the spring. If you have to procure them from a distant nursery, and they are some time out of the ground, make a puddle of earth and water of nearly the consistence of paint. Dip the roots in this puddle, and plant them immediately. This will be found very beneficial to them, and will cause them to push forth roots much earlier. Should the border intended for the rose be long and narrow, we need scarcely tell you to plant the tallest standards in the back row, the next size in the second, and the half standards in the third, and the dwarfs in the front row, that is supposing you to have so many, and so much room as to allow of this arrangement.

PRUNING.—The great objects of pruning in any kind of shrub or tree of the flower-garden, are to produce finer bloom in greater quantities, and to improve the shape of the object operated upon. These two principles must be kept in view in pruning the rose as well as any other flowering shrub or fruit-tree. Different sorts of roses require to be pruned accordingly, and we shall be best understood by taking the different classes into which roses have been divided.

Autumn Pruning.—Summer Roses.

Provence, including the Moss Rose.—These require to be pruned to three or four eyes, according to the strength of the shoots.

Damask.—These require to be pruned, according to the strength of the growth of the different varieties; Madam Hardy, for instance, is a strong grower, and ought to be left with shoots of six eyes.

White Damask.—This species should be pruned similarly to the Damask.

Gallica, or French.—Some of these are very strong growers, and must be cut accordingly. Some shoots

in good soil will grow three or four feet long. Those shoots are often pithy and green, and ought to be cut clean out, and the rest shortened to one foot or eighteen inches, according to their strength.

Hybrid, Provence.—Amongst this class there are some excellent roses. They grow naturally in compact heads and many branches, and should be pruned by thinning out about one-third of the shoots, and shortening the rest to six or eight eyes.

Hybrid, Chinese.—This is a large class of excellent roses; and as there are some that grow freely and strong, there are others that grow very weakly. The strong growers, *Brennus*, for instance, must be cut to eight or nine eyes, whilst the *Beauty of Billiard* is a weak grower, and should be cut to two or three eyes, and half the shoots entirely cut away.

Scotch.—All that these require is to have half of the shoots thinned out, and those that are left cut to half their length.

Climbing.—These require a different mode of pruning to all other roses. We shall describe it as the spur system. Train in young shoots during the summer; in the autumn shorten those shoots one-fourth of their length; that is, supposing the shoot is four feet long, cut one foot of it off, and so reduce it to three feet, and in the same proportion for longer shoots. The shoots will then, during the summer, produce side shoots—these are the spurs. In the month of March following take the shoots off the trellis walls or pillars, prune the spurs into two or three eyes, and then tie or nail them up again neatly to the supporters.

Autumn-pruning.—Autumn Roses.

Macartney—The *Macartney* rose itself requires very little pruning; but the *Maria Leonidas*, a very good rose, requires pruning freely, shortening the strong shoots to eight or nine eyes, and the weak ones to three or four.

Damask Perpetuals—Are mostly weak growers, and should be cut into four or five eyes, and a third of the shoots cut clean away.

Hybrid Perpetuals—Require the same mode of pruning as the *damask perpetuals*.

Bourbons and Noisettes—These are middling growers, and should be pruned moderately; strong shoots to be cut to five or six eyes, and the weak ones to three or four.

China and Tea-scented—Most of these are rather tender, consequently the wood does not ripen to any length. They should therefore be pruned close. If they are planted against a wall they may be pruned longer, as the wood then becomes firmer and better ripened. Prune those in the open air, both standards and dwarfs, to two or three eyes, those on walls to six or seven, in proportion to their strength.

We shall continue this subject in a future Number.

COTTAGER'S FLOWER-GARDEN: CREEPERS for an arched walk.—We directed your attention in last Week's Number to the formation of an arched walk. On each side of this walk ought to be a border of flowers, which would add greatly to the effect of the creepers growing over the arches. Those creepers require a rich soil to grow in. If the soil is poor, remove about a square of eighteen inches, and one foot deep, close to each pillar, and fill up the hole with a compost of good loam two parts, and rotten dung, or leaf-mould, one part, with some sand mixed amongst it: it will then be ready to plant any creepers you can procure, and they will thrive and flower luxuriantly. We subjoin a list, and advise you to procure as many of them as you can:

- Clematis flammula* (Sweet-scented Clematis, Traveller's joy, or Virgin's bower.)
- „ *montana* (Mountain Virgin's bower).
- „ *viticella rubra* (Red Vine-bower Clematis).
- Jasminum officinalis* (Common white Jasmine).
- Lonicera italica alba* (Early white Honeysuckle).
- „ *Belgicum* (Dutch Honeysuckle).
- „ *serotinum* (Late-flowering Honeysuckle).
- „ *sempervirens* (Evergreen trumpet-Honeysuckle).
- Wistaria sinensis* (Chinese Wistaria).
- Climbing Roses*, several kinds.

If you cannot obtain the whole of the above creepers at once, you can fill up any vacancies with summer annual creepers, such as *Convolvulus major* (great Bindweed), *Nasturtium majus* (larger Nasturtium, or Indian cress), *Cobea scandens* (climbing Cobea), sweet-peas, and scarlet-runners. These creepers will look pretty during the time they are in flower, and the last will produce something for the table. Even if all the arches were covered with scarlet-runners, they would be highly ornamental as well as useful. Not that we recommend the mixing of vegetables and flowers, they are much better separate.

PIT.—Look after the plants in the pit, and clear them of all decayed leaves, dead branches, and weeds. Keep them moderately dry, and give abundance of air in all fine mild weather.

HARDY BULBS, &c.—Should you possess no crocuses, snowdrops, double narcissus, primroses, and polyantheses, all of which will thrive without any protection, and may be had for a trifle, now is a good time to procure the bulbs and plant them. The bulbs should be in patches of four or five bulbs in each. Primroses and polyantheses ought to be in quantities in a cottager's garden. Even the common primrose and cowslip are worth growing; they, in the early spring, impart a cheerfulness to the humblest cot.

FLORISTS' FLOWERS.

We promised in the fourth Number a list of tulips, but a press of other matter prevented us. We now give the promised list, divided into their different colours and heights.

CLASS I. CHERRY AND ROSE.—This class may be described as having white grounds with different shades or stripes of cherry or rose-colour. The bed should contain seven rows; the centre one we shall call No. 4; the next rows on each side of it No. 3; the next on each side No. 2; and the other two rows outside, No. 1.

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|-------------------------|----------------------|-----------------------|
| No. | No. | No. |
| 1. Dulcinea. | 2. Andromache. | 3. Aspasia. |
| 1. Fleur des dames. | 2. Catherine. | 3. Sanspareille. |
| 1. Grande Cerise. | 2. Jemima. | 3. Princess Victoria. |
| 1. Monte. | 2. Lord Hill. | 3. Reine des Cerises. |
| 4. Pretiosa superior. | 4. Reine des fleurs. | |
| 4. Cordelia (Slater's). | 4. Walworth. | |

CLASS II. BYBLOMENS.*—This class have white grounds with different shades of purple.

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|---------------------------|-------------------------|
| 1. Bienfait incomparable. | 2. Magnificent. |
| 1. Gloria Alborum. | 2. Queen of Spain. |
| 1. Laura. | 2. Supreme en Noir. |
| 1. Ne plus ultra. | 2. Translucens en Noir. |

* *Byblomen*—A white tulip marked with black, purple or lilac.

3. Black Baguet.
3. Desdemona.
3. Washington.
3. Cleopatra.

4. Alexander Magnus.
4. Prince Regent.
4. Captain Lampson.
4. Holmes's king.

3. Abercrombie.
3. Cato.
3. Lustre.
3. Surpass Catafalque.

4. Emperor of Austria.
4. Nimrod.
4. Wilmer's Duke of York.
4. Platoff.

CLASS III. BIZARDS.*—This class have various colours on yellow grounds.

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|-----------------------|---------------------------|
| 1. Emperor of Russia. | 2. Britannicus. |
| 1. Pont d'Arcole. | 2. Darius. |
| 1. Superbissima. | 2. Franklin's Washington. |
| 1. Vulcan. | 2. Grand Berger. |

The above will form a small collection of forty-eight kinds, all good, of moderate price, averaging about half-a-crown each. Of course, if more expensive sorts are wished for, they can be had as high as ten guineas a root; but for a new beginner we would not advise such expensive ones.

THE KITCHEN-GARDEN.

ARTICHOKES (Jerusalem) should now either be taken up and stored in the same way as potatoes, by trenching them out, leaving the ground in ridges, and planting the same ground again, by placing good, middling-sized tubers, two feet apart, between every alternate ridge of two feet in width. The rows will thus be at four feet distance from each other. Or the tubers may be allowed to remain in the ground, the stalks being cut off to within six or eight inches of the earth's surface, and a coat of mulch, leaves, or refuse of any kind put over them. This is not to protect the artichoke tubers from frost, for no frost will injure them, but to protect the earth's surface, so that the artichokes may be taken up at any time, even when severe frost prevails. Pigs and cows are very fond of the artichoke tubers, and so are pheasants and poultry. As a substitute for the potato, they are also to some extent useful.

CAULIFLOWERS and **CAPE BROCOLI** continue to store away, as previously directed, all now coming in that are not actually required for daily consumption; and the young plants for spring continue to prick out in temporary frames, or sheltered banks or borders. Observe that the slugs do not take advantage of any lack of timely attention. A little new bran or fresh malt grains placed in small quantities about where slugs abound are the best materials we could ever discover for enticing them together. By strict attention for a time in moist weather to this mode of trapping, the stock of slugs may be so reduced that by well following up surface-stirring and hoeing they may be entirely kept down from committing any serious depredations.

CUCUMBERS.—Those who have good varieties in houses or frames should secure young plants by striking cuttings, which is easily accomplished by taking off the short-jointed shoots with a heel to them. † Indeed, any shoots will root easily and quickly enough by placing them in small pots in a compost of open, heathy, sandy soil, having mixed with it one-third of charcoal in small lumps, if they are placed on a brisk, kindly bottom-heat, and are covered for a few days with a bell or hand-glass. Succession of seed should be sown by those who have the convenience, and wish to produce early cucumbers. The system of heating by hot water in a tank on a good principle is the most easy and economical mode of producing abundance of good cucumbers in winter and spring months. If cucumbers, however, are grown on a common bed with frame, this system is also much simplified and economized by making a slight hot bed, composed of well-wrought materials placed on bushes, fagots,

prunings, or rough wood, and keeping up the heat by linings with the same kind of sweet well-wrought stable-dung; topping up the linings at all times as soon as they are sunk a little, taking care to protect the outside and top with furze or other fagots, fern, mulchy hay, or thatched hurdles. By paying this strict attention to topping up and protection, a steady, kindly, humid heat is maintained, banishing all fear of canker, or mildew, or any other disease infecting the plants, for the heat maintained at the top acts in a similar way to the sun shining. It is the air in the frame that requires to be maintained in a warm, kindly condition. If this is so maintained, the bottom-heat is sure to be all that is required. The old system of applying excessive bottom-heat with pigeon-hole pits, extensive and high hot-beds, laying pipes through and about them, boring holes to admit a foul, excessive bottom-heat, we hope, is generally long laid by in the corner of ancient curiosities.

HORSERADISH should now be trenched out, and replanted again at two feet distance from row to row. In planting, trench the ground two feet deep, and place the crowns, which make the best sets, at the bottom, one foot apart, leaving the soil in ridges, to be forked over and pulverized by the action of the winter's frost, and laid down in a kindly, open state in the spring.

MINT BEDS should now be thoroughly cleansed, and a surface-dressing of decomposed manure-vegetable soil or rotten leaves applied, which answer as a protection against severe frost, and a stimulant to induce early spring growth in the plants.

ASPARAGUS BEDS, dress. The best mode of doing this is to cut down the stems close to the surface; to hoe off about an inch in depth of the earth into the alleys; to put on a coating of pig-dung or night soil about two inches thick, and then to return over this manure the inch of earth previously taken off. This will make all neat, and the dressing will be completed by sprinkling over the surface of the returned earth enough common salt to make it perceptibly white.

POTATO-PLANTING.—In answer to various queries we think it best to answer here, prominently, that we do not recommend autumn-planting for the very earliest variety—the walnut-leaved kidney. If planted now, it comes up so early as to be invariably cut off by the spring frosts. But for the next in succession, the ash-leaved kidney, we ourselves adopt autumn-planting; although, by so doing, we do not get so early a crop as the Lancashire growers, whose practice is detailed at page 38, as well as in the present Number; but then we are quite sure we preserve our crops in better vigour. In order to obtain earliness, as well as to sustain the health of the ash-leaved kidney, the

* *Bizard*—A yellow tulip, with marks of any other colour.

† *Heel*—part of the bark of the main stem attached to the cutting.

potatoes might be put in casks or boxes in alternate layers with earth, and kept in a dry cool room, as is done by the Lancashire cottagers. Without injuring the sprouts they would make, the sets may then be planted out at the end of March. In answer to two correspondents ("W. S. O." and "Potato, Kennington,") we recommend the ash-leaved kidneys to be planted in rows two feet apart, and one foot between the sets. For Julys or other larger varieties, two feet

and a half between the rows, and one foot and a half between the sets, is not too much. We prefer Julys to any other variety, because it is ready for taking up, and the stems all dead, by the end of the month the name of which it bears. It keeps well, though it ripens thus early. It is commonly grown in Hampshire, and could be purchased, we suppose, of any large Loudon seedsman.

J. B. & G.W. J.

MISCELLANEOUS INFORMATION.

POTATO-GROWING IN LANCASHIRE.

THE following is the Lancashire cottager's plan of obtaining their winter potatoes on the moss lands, of which there are many thousand acres in the neighbourhood of Garstang. The farmer's great object in letting those lands to the cottagers, is to get the soil cleared and manured for a crop of corn the following year. The farmer charges them at the rate of 6*d.* per rod for the land they plant, which is at the rate of £4 per acre, although the farmer only pays for it at the rate of 20*s.* to 30*s.* per acre. The farmer prepares the land into drills, carts their manure on to the drills, and the cottagers spread it, and plant their potatoes. The farmer ridges them up with the plough, there being about twenty-eight inches from centre to centre of the ridges. By this means the potatoes have the full benefit of the sun and wind, which is of the first importance for the cultivation of this root and the prevention of disease. The ground should be thoroughly drained. The cottagers are bound to keep the potatoes free from weeds, and they are earthed up by the farmer, as soon as required, once or twice; as it is found that the more the ground is stirred whilst the crop is growing, the greater will be the produce. By this means the cottagers obtain an abundant crop by early spring planting, and at a light expense by planting what is called the small chat potatoes, which, being each less than an ounce in weight, will, if planted whole, suffice for about twice as much ground as large potatoes cut, though of the same weight: 30*lbs.* of those small ones in the present season have produced 600*lbs.* of the first-rate quality, large and free from the disease, and the larger weight in proportion. The cottager's manure is principally horse-droppings, gathered from the roads during the year, with the ashes and wash from the cottage. These potatoes are the principal food of many families five or six in number; and as they are able to get from their crops as many as pay all the expenses of planting, they, in fact, get potatoes enough for their own consumption free.

Would it not be well if this plan was adopted in Ireland, as there is no doubt an abundance of moss land (peat) in that country as well as in England, and by planting early, so that if by July the disease appeared, the potatoes might be taken up as directed at page 37. Potatoes vegetate the first of all things, which is a sure sign that they need not be kept planted in the ground; and as to being cut by the spring frosts, that is not of so much importance, as I have had them cut by it three times, and yet they have rallied and produced a fine crop; but this has never been the case with those late planted when cut with either a summer morning or autumn frost, which they are never able to get over, and which causes their tubers to be small and the crop to fail. The sun has

a far greater power upon the potatoes, and even upon corn, on the moss land than on the hard. From many years' observation, I can see no advantage to be derived from autumn-planting, but, on the contrary, as the earth becomes set about the tubers, and excludes the sun and air from them, which appears to me the reason why potatoes suffer more from the disease planted in hard and stiff land than those planted in the light, open, porous moss land, where the sun and air have their full influence, free, also, from any stagnant water remaining upon them, which is not the case with those planted in hard, stiff land. Although I here differ with Mr. Barnes, page 6, it is with no ill-feeling, as my object is to give an opinion, and not any offence, for we live to inform each other, or we live in vain, and as this is a subject which has, of late, excited much attention, I am therefore inclined to think it may be of some interest to the readers of "THE COTTAGE GARDENER." I have put the question to an extensive moss-land potato grower, and his answer is, that "notwithstanding all that has been said respecting the failures of the last three years, it is, in my opinion, owing to the treatment and slothfulness of the growers. As I have made at the rate of £170 per acre from spring-planting, unless you can give me a better proof than you have done in page 6, I cannot give up spring-planting." M. SAUL, *Garstang.*

[We need not say that we do not agree with our friends in their objections to autumn-planting, but are most willing to hear both sides of the question.—Eo.]

MY FLOWERS.

(No. 4.)

LADIES are often disheartened in the management of their gardens by attempting too much. When unable to purchase new and expensive plants, or rear the tenderer ones, they are disposed to give everything up, and neglect an interesting occupation, because they fancy nothing can be done without money and a good gardener. Now this is a great mistake. A lady may effect much without any assistance if she will but believe that "common" flowers and plants, as they are called, are well worth looking at when tastefully arranged and carefully attended to. A "good gardener" certainly insures you a greater variety of flowers, and they are, of course, finer than those nursed by an inexperienced hand; but you have not the same pleasure in your little kingdom when there is some one who knows and does everything there better than yourself. A lady with a good gardener begins cheerily at first, but in a year or two it is all over. She walks round the glowing borders, but her interest is gone. To enjoy your garden tho-

roughly you must say with Queen Elizabeth, "I will have but one mistress here, and no master." Most ladies, however small their means, may occasionally employ a labourer to do some of the rougher work, such as digging or rooting-up a tree; and if they can but be satisfied with a less choice variety than their richer friends, I am sure the effect produced may be quite as good. I have often turned away from beds full of flowers, with names unheard of before, and have said, "After all, give me the cottage flowers,—the rose, the honeysuckle, the sweet-pea, and mignonne,—they are sweeter and prettier than anything I see here;" and others have said so too. These truly English home-breathing flowers, connected too with our earliest years and sweetest recollections, should never be undervalued, their fragrance is unequalled, and their beauty can never be surpassed.

I do not think the ivy is sufficiently considered as an ornament to the garden. Its rapid growth makes it invaluable where large buildings, or walls unfit for fruit trees, require to be covered; but it is equally useful as an embellishment among shrubs, particularly those which shed their leaves in winter. The dead stem of a tree, with its boughs left on a foot or two in length, clothed with ivy, is a beautiful object, standing in quiet staidness among the lighter beauties of the shrubbery, with its dark rich mass of foliage growing richer and handsomer, as its neighbours sicken and die. When I first saw an ivy-tree I was struck with its beauty and solemnity of look: it gave an appearance of age to the garden, which is also an advantage. Any stump or rough pieces of wood nailed strongly together will do to support this beautiful climber, which wraps itself thickly round its prop, and then hangs in waving masses, covered with its starry flowers, on every side. A lady may easily encourage the Irish ivy, which is the richest and quickest-growing kind. Cuttings put in now or in the spring will take, and shoot up rapidly; and I have known them, when ignorantly planted with their head downwards, spring up as merrily as if all was well. If you can find a rooted plant some feet in height, so much the better; tie or nail it closely to its support till it has fixed itself, and the desired effect is sooner, of course, obtained. Never let ivy climb round a thriving tree, it clasps so tightly, that the wood cannot expand, and disease and death will ensue. It thrives equally well on living and dead wood, needs no attention except to fix it up when loosened by the wind or other violence, and is the most beautiful, graceful, and effectual screen that a garden can possess.

Rustic baskets, supported on wooden feet, look beautiful when covered with Irish ivy. During the winter they are ornamental in themselves; and when filled with geraniums and other flowers, with the tendrils running over and concealing the pots, the effect is perfect. These frames may very easily be made, as they are not intended to hold soil. A few crossed sticks nailed to a piece of board, the shape and size you wish, is quite sufficient; the ivy will soon hide it all, and form a green and beautiful basket. Whenever you wish a shrub removed, see if you cannot make it useful in this way: head down three or four of the stems to a proper height, and fix a basket upon them; cut away all the rest, and as the leaves spring from the standing stems, keep cutting them off, they will soon cease to trouble you. In the earlier stages of ivy-plants, a crimson or white rose blooming amongst its dark leaves has a lovely effect; but when it becomes thick and bushy, the rose-tree had better be placed elsewhere. Ivy forms a beautiful kind of carpet under trees, where grass does not grow; it

runs and spreads, and seems, like a joyous spirit, to revel in its own light-heartedness.

By simple means, such as these, the eye and hand of taste may perform wonders, without expense, and with little time and trouble. The ivy flourishes everywhere,—evergreens do well in almost all situations,—violets and the star-like periwinkle decorate an awkward-looking bank; an unsightly hedge may be enlivened with scarlet-runners, nasturtiums, and convolvulus, so that few gardens may not be made to smile, even under great disadvantages. Ivy will help you here; let it creep about, and cluster where it likes; it beautifies everything it clings to.

A neatly mown lawn, with an ivy basket or two, a trellised porch or verandah waving with roses, honeysuckle, and jasmine, a wall clothed with creeping plants, or a vine, or any favourite ivy, with an invaluable Virginia creeper for "winter wear," a few beds of well-chosen annuals and perennials, neatly kept and cared for, a few judiciously-placed flowering shrubs and evergreens, are quite enough to make the country parsonage and cottage residence gay and delightful both to the eye and heart. Surely all ladies may accomplish this! How much of the enjoyment of a happy domestic country house springs from its garden! What a tale it may tell, in its silent sweetness, of all that is passing within! It "discourses eloquent music." There are the husband's apple and pear-trees, twined by the wife's sweet clematis; his cabbage-beds fringed with her pinks and pansies; the tool-house wreathed with roses; his rougher labours adorned by her gayer fancy,—all speaking loudly of the happy union of their hearts and tastes.

This is one of England's blessed peculiarities—one of the secrets of her peace and power. Let us foster as much as possible the love of gardening, for it involves that holy feeling, the love of *home*.

CARROTS IN OLD GARDEN-GROUND.

THE culture of carrots is an object of some considerable interest to cottagers, in many of whose gardens they do not often succeed. The following simple plan has been for years practised in the garden of the Earl of Morton, at Dalmahoy, which for many years prior to its adoption had ceased to produce carrots. The seeds are sown in the usual manner, and at the usual time; and, immediately after, a quantity of Scotch kale (German greens) or Savoys are planted promiscuously over the bed, about five or six feet apart. Those are allowed to grow through the summer, and carrots of a large size, and free from disease, is the result. Such is the fact—what is the cause? In Scotland cottagers often sow carrots amongst their onions and leeks: those in general succeed, while carrots sown by themselves in an adjoining bed totally fail.

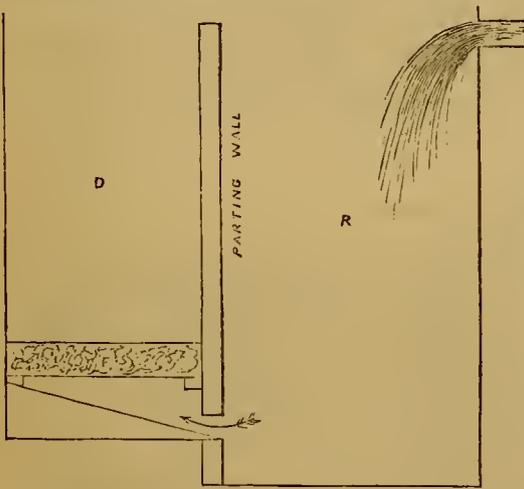
These homely facts may be of use to some of the readers of the "COTTAGE GARDENER," with the style and objects of which I am much pleased, and wish it every success.

C. McINTOSH, *Dalkeith*.

HOUSE SEWAGE.

I AM a working man, with a plot of garden just out of town; and until I read your information on manures, I always had an objection to the use of black ditch-water if I could have got clean at hand; but, as the old saying is, Live and learn. I have noticed

the information given by C. W. Johnson, Esq., near Croydon, on the filtering of Sewage. I have thought (and perhaps may be wrong) that the sediment of the sewage would soon stop up the filterer and prevent it from acting; but Mr. Johnson says that the object might be accomplished by one tank only, if furnished with a division. Then suppose we say a tank, five feet each way, and deep, with a four-inch division in it, and the communication to be at the bottom of the division-wall, and big enough to get a hoe through,—or say six or eight inches from the bottom of the part the sewage is to drain into, and then the bottom of the other part to incline about six inches on the three sides towards the communication-hole, and the filterer constructed as Mr. Johnson says, and resting on the top of the inclosed sides; the filtration would then be upwards, the sediment would sink to the bottom of the receiving-side, and the filterer would be less liable to choke. See the rough sketch below, on a scale of half an inch to a foot.



R. the receiver. F. the filterer. D. to dip or pump from.

Cemented brick-work would be more durable, there is no doubt; but two large butts would answer the purpose—the R. one sunk to six or eight inches lower in the ground than the D. one, with a communication-pipe at the bottom, with grating over the hole to prevent it from being choked. W. W.

THE BEAN AND ITS VARIETIES.

The bean is one of the earliest vegetables known to have been a common food of man; and when we chance to partake of the true Mazagan we shall be correct if we call to remembrance that we are probably eating of the very kind of bean that Shobi brought to David in the wilderness, and with which God commanded Ezekiel to make coarse his bread. (2 Sam. xvii. 28; Ezek. iv. 9.) This conclusion is probable, because the Mazagan kind of bean is the only one prevailing in Palestine and the regions surrounding it. It is curious, also, that the Hebrew name for the bean, *puls*, is in common use with ourselves, though we include under our word, *pulse*, all kinds of peas and lentils, as well as beans.

Beans are mentioned by the oldest Roman writers upon the cultivation of the soil; and when the Romans conquered England and settled here, there is no doubt that they introduced them, as they are also known

to have done the vine and other tenants of our gardens. It is quite certain that they became a common food of the Anglo-Saxons when they expelled from our shores the Romans and settled here in their places. Certain lands are mentioned in an old Saxon charter as bestowed upon a monastery to supply it with beans, salt, and honey; and in another Saxon manuscript equally ancient there is the following conversation with a child: "What do you eat to-day?—As yet I feed on flesh-meat, because I am a child living under the rod. What more do you eat?—Herbs, eggs, fish, cheese, butter, and beans, and all clean things I eat with many thanks."—*Turner's Anglo-Saxons*, iii. 31.

Although cultivated in the earliest ages of which we have any history, many hundreds of years passed without any improvement of the kinds. Even as late as the days of Parkinson and Ray, about two centuries since, although the bean was "much grown," yet only two kinds were known, one with white, and the other with red blossom. No further back than 1727, Switzer, in his "Practical Kitchen Gardener," only names four varieties,—the Hotspur, Gosport or Spanish, Sandwich, and Windsor. The history of nearly all the kinds is almost forgotten; but what little we have been able to collect is included in the following catalogue:

SMALL EARLY VARIETIES for sowing from October to January, the beans to be gathered from the middle of May to the middle of June following.

1. *True Mazagan*.—The seed of this is only to be obtained direct from the southern coast of Spain, or from the northern coast of Africa. If the seeds be saved even only for one season in this country, it acquires all the characteristics of the variety next mentioned. The true Mazagan derives its name from a Portuguese settlement similarly titled, on the north shore of Africa. Its stalks are not more than eighteen inches or two feet high. They are slender, and in favourable seasons are loaded with pods throughout; the pods have three or four beans in each, and these are roundish, white, and not so large as horse-beans. Sown the second week in October beneath a south wall or paling, they will usually afford a gathering in the second week of May.

2. *Early Mazagan* (Early Portugal, Small Spanish).—This is a variety always the result of saving seeds from the True Mazagan, either in England or Portugal. Stem slender, three feet and a half high, pods narrow, five inches long, averaging four beans in each; flowers white, with dark brown spots; ripe seeds, very pale, and rather larger and flatter than those of the horse-bean. Sown in the second week of October, first gathering the end of May.

3. *Dwarf Fan, or Cluster* (Marshall's Early Dwarf Prolific).—Stems ten or twelve inches high, spreading like a fan from the root. Great bearer; pods grow in clusters, and containing three or four small round beans, but rather flatter than those of the Mazagan. It is a very early, good flavoured kind, and particularly deserving of cultivation in small gardens, from growing so dwarf, and, consequently, not overshadowing other crops. Sown the second week in October; we have gathered them in the third week of May.

4. *Long-podded* (Early Lisbon, Early Long-pod, Large Long-pod, Hang-down Long-pod, Lisbon, Tall Long-pod, Sandwich, Early Mumford). Stems about four feet high, great bearer, pods six inches or more long, rather hanging down; seed four or five in a pod, pale, and about an inch long, flat, and round at the ends. Sown the second week in October, first gathered from the 5th of June.

LARGE LATE VARIETIES for sowing from January to the end of July, and which will usually be first

gathered from in twelve weeks from the time of sowing:

1. *Windsor* (White Windsor, Broad Windsor, Turkey, Taylor's Windsor, Broad Spanish, Mumford, Johnson's Wonderful).—Stems four feet high, pods usually short and thick, with not more than two seeds, but we have seen them with six. Seeds when ripe, pale, circular, and about an inch across.

2. *Green Windsor*.—This resembles the Windsor in most respects, except the colour of its seeds. These are green when boiled, and green when ripe. It is rather sweeter than the Windsor, and this, together with its colour, renders it longer fit for table use.

3. *Red Windsor* (Dark Red, Scarlet Windsor).—Differing from the two preceding only in the colour of the seeds, which are scarlet when full-grown, and dark red when ripe.

4. *Dutch Long-pod*.—Stems between four and five feet high. Pods nearly as broad as those of the Windsor, and longer, averaging five seeds in each. The seeds are as large as those of the Windsor, but more kidney-shaped, like those of the Long-pod. It is a good bearer, excellent in quality, and ought to be more cultivated.

5. *Green Long-pod* (Green Genoa, Green Venetian, Green Nonpareil).—This excellent and prolific bean

differs chiefly from the preceding in the colour of its seeds, which are green even when ripe.

6. *White-blossomed Long-pod* (White-blossomed).—This differs from all other beans in having blossoms entirely white, and are blotched with dark-brown or black, as is the case with all the other kinds. Stem three and a half feet high. Pods long, cylindrical, and averaging four seeds each. Seeds when ripe, thick, and three-quarters of an inch long, and half an inch broad; but their great peculiarity is their being nearly black.

7. *Token* (Large Token).—Probably so named after its first raiser. Stems five feet high. Pods long and broad; seeds three or four, and as large as Windsor, but oval. It is a good bearer, but strong-flavoured.

8. *Red-blossomed* (Scarlet-blossomed).—Stems four feet high. Blossom varying from pink, through various shades of red, to a blackish brown. Pods four inches long; seeds four or five in each, of a rather more oval shape than those of the Long-pod; rusty brown when ripe. Good bearer, and handsome when blooming.

9. *Violette* (Red-seeded).—Stems about four and a half feet high. Pods long and broad; seeds three or four in each, and rather longer than those of the Long-pod; are pale purple when young, and a dark red when ripe. Flavour very strong.

TO CORRESPONDENTS.

NEW PLANTS, etc. (*J. N. B., Hulsead*).—If you apply to any of the first-rate florists or seedsmen in London, Exeter, or elsewhere, according to the nature of the article you require, and stating in what publication it is mentioned, they will obtain it for you. We cannot name any one in particular.

ERROR (*R. D., Chester*).—The mistake, "61" instead of "31," was corrected in our third Number. Thanks for the offer, which we accept gladly.

GARDENER'S CALENDAR OF WORK (*Gardener Jacob*).—Such a calendar might be easily prepared, but would be too voluminous for our pages. We will think over the matter.

AMERICAN BLIGHT (*F. of Y.*)—A recipe for the destruction of this insect is given in a former Number (p. 42).

DWARF KIDNEY-BEANS (*R. J. Street*).—These may be pulled up by the roots so soon as the pods turn yellow, and hung up to dry where frost cannot get at them.

ONION AND CARROT-SEED (*Ibid.*).—These may be threshed out when quite dry. They should be beaten out with sticks, and not with a flail.

MONTHLY PARTS (*Ibid.*).—The Calendars in these are for the month previous, but contain intelligence useful at all times for reference.

CARROTS AND PARSNIPS FORKING (*E. H. Johnson*).—The reason of this in your case is obvious. The plants emit forked roots to keep near the guano scuffled in with the seed. For all such tap-rooted vegetables the ground should be trenched, and a little manure turned in with the bottom spit only. The root strikes down straight to this.

GRASS-PLOT (*L. L. L.*).—In the spring, at the end of March, as your lawn is too large for turfing, dig your ground even, rake it perfectly level, and then sow it with the following grass-seeds, passing a light roller over afterwards. The quantities are enough for an acre, but you can diminish them in proportion, if your plot is less. Crested dog's-tail, 6lbs.; hard fescue, 20lbs.; fine-leaved fescue, 2lbs.; wood-meadow grass, 2lbs.; common-meadow grass (poa trivialis), 4lbs.; creeping white clover, 8lbs.; smaller yellow trefoil, 3lbs.

GESNERA ZEBRINA AND ACHIMENES PICTA. (*Français*).—You keep them too cold, probably. They produce under-ground tubers, from which they are readily propagated; but they may be increased from their leaves. In the latter mode, cut off a leaf close to the stem, plant it in a pot filled with a mixture of three parts sand and one part peat, cover it with a glass, and plunge the pot in a hot-bed. Wipe the glass dry every morning until the leaf is rooted, then give it air freely. The time for this is early spring. This winter gradually cease from giving them water when done blooming, but admit air to them freely. When the stems are brown and dry, cut them off within an inch of the soil, and put the pots into some cupboard where neither damp nor frost can get at them. In this way keep them through the winter. The horse-shoe geranium with pale flowers is not uncommon.

PRIVET. (*Rev. J. L. Cooper*).—Cuttings will succeed if planted forthwith. Use cuttings of the young shoots eight or ten inches long; strip off the leaves from their lower half, and plant them that depth in a shady border. They will be rooted and ready for planting

out next autumn. What evergreens do you mean? The laurel is best propagated by layering. Peg the branches down at once.

POTATO SHOOTS. (*W. W.*)—The ground must be opened and the shoots removed for planting, with their roots attached to them.

DISSOLVED BONES. (*W. W.*)—On a small scale, 6lbs bone-dust, 3lbs oil of vitriol, 1½ lb. water. Sprinkle the water on the bones first, and then add the vitriol. Be careful, for it is very corrosive. Use a cask large enough to hold twice the quantity. As much ashes or water may be mixed with the dissolved bones as will enable you to sprinkle it over the plot of ground regularly. The above quantity of bones and vitriol would be enough for 100 square yards.

BEES. (*Rev. C. A. A. Lloyd*).—Thanks for your very obliging permission, of which we will take advantage.

AUTUMN-PLANTING POTATOES. (*W. S. O. and Potato*).—See "The Kitchen Garden" of to-day.

WORMS. (*Veritas*).—Worms are not generally injurious, but, on the contrary, beneficial by perforating the soil, and thus establishing a natural drainage. They certainly will not injure your bulbs. We will give some directions about byacins.

BONE-MANURE (*E. Whittle*).—Common coal-ashes are those employed. We do not think that bones alone, applied annually, would be a sufficient manure. Plants would require more carbonaceous matters such as is supplied by decayed vegetables. There cannot be a better manure than your sawdust soaked with the house slops.

WINDOW-PLANTS (*T. J.*)—If turned half round daily, they will not be drawn to one side. We cannot state prices, nor fairly mention florists.

FILBERTS. (*A Householder*).—We keep our filberts in an open pan in a damp cellar, without taking off the husks; they continue good for more than twelve months.

HOUSE SEWAGE. (*A Subscriber*).—The tanks in Mr. Johnson's garden cost a very few shillings. They supply sufficient liquid manure for three-quarters of an acre of garden-ground. All the contents of the water-closets pass into tank No. 1.

LEAVES. (*Homo*).—To reduce these to the easily-crumbled mould required by florists requires that they be kept moist in a heap, and frequently turned during two years. They may be reduced to that crumbly state more rapidly by mixing a little quick-lime with the leaves; but then all flowers do not require so much limy matter in their soil.

CHARRED TURF. (*R. M.*)—We do not see any reason against your commencing operations at this season of the year, but we will give you fuller information in our next.

X. Y. Z.—Thanks for your suggestions. As to the poetry, we agree with you; as to the other points, we have contrary opinions. Be assured we shall keep until by constantly in view as our chief object. Saving of seeds shall not be lost sight of.

CHRYSANTHEMUM. (*J. Satmon*).—A list of these will appear shortly.

RASPBERRIES. (*A Subscriber*).—Mr. Barnes allows the autumn-bearing raspberry-canes of this year's growth to remain until the spring, whether they are replanted or not. At that season the whole are cut close to the ground, where a number of plump buds may be seen, ready for producing the season's fruiting-wood.

WEEKLY CALENDAR.

M D	W D	NOVEMBER 16—22, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
16	Th.	Titmice draw near to houses.	African Hemp.	23 a 7	7 a 4	10 10	20	14 59	321
17	F.	Hugh, Bishop of Lincoln.	Stramonium. [flower.	24	6	11 18	☾	14 47	322
18	S.	Red-headed Pocher arrives.	Saw-leaved Passion-	26	5	morn.	22	14 34	323
19	SUN.	22 SUNDAY AFTER TRINITY.	Apple-formed ditto.	28	4	0 26	23	14 20	324
20	M	Edmund, King and Martyr.	Red Stapelia. [sorrel.	29	2	1 32	24	14 6	325
21	Tu.	Princess Royal b. 1840. Linnean Soc.'s M.	Large flower'd Wood-	31	1	2 36	25	13 51	326
22	W	St. CECILIA. Sun's Dec. 22 ^d 15s. [Meet.	Trumpet-flower'd do	33	0	3 39	26	13 35	327

HUGH, BISHOP OF LINCOLN, was a native of Burgundy, appointed to that bishopric by Henry II. He died on this day, in the year 1200, and without having possessed any merits so superior as to deserve this annual remembrance.

EDMUND, king of East Anglia, is said to have been put to death by the Danes, because he refused to renounce the Christian faith. At all events they murdered him in the year 870, and he was buried in Suffolk, at the town still known as Bury St. Edmunds.

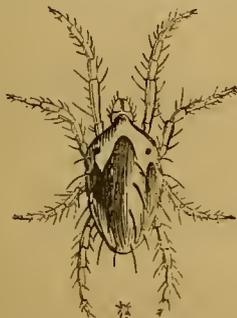
CECILIA was martyred by the Romans in the year 230, for refusing to worship their gods. It was formerly fashionable to have concerts on this day—she being considered a patroness of sacred music. This custom gave birth to the celebrated "Odes to St. Cecilia" of Dryden and Pope.

PHENOMENA OF THE SEASON.—Mr. Jenyns says that the teal usually reaches our coasts about the 16th of this month, and that

INSECTS.—The Red Spider, or Plant-mite (*Acarus Tellarius*) is one of the gardener's greatest

pests, though so small as to be scarcely visible to the naked eye. The accompanying engraving represents it magnified. It has eight legs, and its colour is sometimes yellowish, at others brown, but oftener a dull red. On each side of its back is a blackish spot (Kollar). At this time of the year it may be found under the bark of the lime-tree; but at all times it is to be found in green-houses and hot-houses that have been kept too hot and dry. In the summer time it may be found, occasionally in myriads, upon the under sides of the leaves of kidney-beans and limes. The injury they occasion by sucking the sap, and by their webs embarrassing the breathing of the plant through the pores of its leaves, is told by the brown colour which these assume. To destroy these insects in the green-house or hot-house, or cucumber-frame—for they attack this plant also—there is no plan so effectual as heating the hot-water pipes of the houses, or hot-water plates placed in the frame, by filling them with boiling water, sprinkling upon them flowers of sulphur, and then shutting up the houses or frames. The vapour of sulphur is fatal to the insect where the air is thoroughly impregnated with it, and the work of destroying these insects is completed by syringing the infested plants with water. This last is the only practical remedy to plants in our borders, unless they can be covered over so that the fumes may be confined, whilst the sulphur is volatilised over a hot-water plate. Potted plants may be submitted to the vapour of sulphur in a similar way. The vapour of spirit of turpentine is said to be as effectual as sulphur.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.
16	Frosty.	Rain.	Fine.	Fine.	Rain.	Cloudy.	Rain.
17	Frosty.	Cloudy.	Cloudy.	Cloudy.	Fine.	Cloudy.	Fine.
18	Snow.	Cloudy.	Fine.	Cloudy.	Cloudy.	Cloudy.	Frosty.
19	Cloudy.	Rain.	Fine.	Cloudy.	Rain.	Cloudy.	Frosty.
20	Rain.	Cloudy.	Fine.	Fine.	Rain.	Cloudy.	Cloudy.
21	Rain.	Fine.	Cloudy.	Fine.	Rain.	Fine.	Cloudy.
22	Rain.	Rain.	Rain.	Cloudy.	Fine.	Fine.	Cloudy.



NATURAL SIZE AND MAGNIFIED.

these insects is completed by syringing the infested plants with water. This last is the only practical remedy to plants in our borders, unless they can be covered over so that the fumes may be confined, whilst the sulphur is volatilised over a hot-water plate. Potted plants may be submitted to the vapour of sulphur in a similar way. The vapour of spirit of turpentine is said to be as effectual as sulphur.

Among numerous letters now before us is this brief note:—"I have a few plants in pots, principally geraniums and fuchsias, in number not more than a dozen, which, for the want of better convenience, I intended to have kept in my bedroom during the winter, but have been strongly recommended otherwise, on the ground that it is very unhealthy to have them in the house, but particularly in a bedroom. I cling to a different opinion, and seek from you satisfaction on the point—" And, as they are not fragrant flowers, we rejoice to think that we can give that satisfaction in every sense of the word; for it would have vexed us if we had been obliged to have coincided with those who have said that our correspondent must part from her twelve companions. So far are they from injuring the air of her chamber during the day, that they really purify and improve it. Let our correspondent bend down one of the branches of her

plants and plunge its leaves under the clear water contained in a drinking-glass; let her show the bright bubbles emitted by those leaves, in the daylight, to the friends who would exile her plants—and let her ask those friends whether they are ignorant of the fact, that every one of those bubbles is full of vital air (oxygen), which, if taken from the atmosphere they are all breathing at the time, would cause their instant death. If they require a proof of this, let them put a mouse under another drinking-glass, turned down, with its mouth beneath water, to shut out the air of the room: in a few minutes that mouse will die of suffocation, having by its breathing consumed all the vital air within the glass. Let a sprig of mint be now passed under the water and into the glass, without bringing its mouth above the surface of the water. After remaining there for an hour or two, let another mouse be passed under the water and

into the glass. This mouse will live as long as the first mouse; for the sprig of mint has again supplied the contents of the glass with vital air. It matters not how often the experiment is repeated—the result will always be the same. Now what that mouse did under the glass, every living person is doing in a room; namely, consuming the vital air in it. Plants, on the contrary, are continually pouring vital air out from their leaves during the day; and to show this more strikingly, if a sprig of mint sufficiently large is kept under the glass with the mouse, they will live on together until the evening—for the mint will produce vital air as fast as the mouse consumes it.

At night, however, quite another series of circumstances occur; for in the dark, the leaves of plants give out unbreathable air (carbonic acid gas) and take in vital air. In a word, they render the air worse than if they were not there; and if our correspondent is in delicate health, we recommend her to have her plants moved into an unoccupied room, or even into the passage, so soon as the twilight is gone. If, however, she is in good health, if the plants are near the window, and there is a fireplace with an open chimney in her room, then we do not think she need remove her plants even at night, for there will be such good ventilation, such a constant supply of fresh air, that the plants, not being highly scented, cannot occasion the slightest injury.

Strongly smelling cut-flowers, on the other hand, are very injurious at night; for not only their fragrance, but the unbreathable air they give out, and the still more noxious fumes from their slowly decaying leaves, all unite to vitiate and render the air of the room unwholesome. It is very common for persons to enjoy the perfume of flowers in the open air, and yet to faint and sicken if shut up in a room with the same flowers.

CAPTAIN LOWTH, of the East India Company's service, brought some seeds of the Himalayah pumpkin with him to England last year, and we have succeeded in

raising from them a small quantity of seed.* We could easily have saved more, for our plants were most prolific, but we were not aware that the proportion of seed to the flesh of this pumpkin was so small. This is one of its excellences; but another good quality is, that, for boiling as a vegetable, to be eaten like the vegetable marrow, it is much better, both as to firmness of flesh and flavour when of a large size, than when boiled during its earlier period of growth. When full-grown it is fifteen inches long and eight inches across, with rounded ends. For boiling, we cut it when about half that size. It is smooth-skinned, not at all ribbed, and is marbled with green and straw-colours.

As might be expected from its being a native of the snowy range of the Himalayah Mountains, this pumpkin is quite hardy. We sowed it at the beginning of June, on a richly-manured piece of ground, without any hotbed, but giving it at night the shelter of glass. Two plants were within a two-light frame, but they speedily outgrew this place of confinement, sending forth numerous shoots, some of which, despite continued stopping (pinching off their heads), persisted in throwing out laterals (side-shoots) until they extended more than twelve feet from the stem. The plants were most prolific, notwithstanding the wetness and coldness of the summer, each plant producing more than twenty fruit of various sizes—the last being cut in October. We ripened one for seed on each plant; and these, when cut, weighed full twelve pounds each. It was from their flesh the excellent soup was made for which we gave the recipe in our fifth Number.

WE are sorry to hear that Mr. FORSYTH, the talented Gardener lately employed by the Earl of Shrewsbury, has left his situation, and is now a guard on the North Staffordshire Railway. "It is truly a pity," adds our informant, "that such abilities should be idle."

WE are compelled to defer our Double Number until next week.

THE FRUIT-GARDEN.

PEAR, FOR THE AMATEUR AND COTTAGER.—In former times few persons thought of planting pears in small gardens, unless against the gable of a building. It was supposed impossible to grow them as dwarf standards, or mere bushes; and as for the ordinary standard orchard pears, why, if ever they were introduced, they in time smothered a very large portion of the little garden. The notoriously long period, too, that most of them grow before arriving at a bearing-state, gave rise to the expressive old distich:

"He who plants pears,
Plants for his heirs."

Now, however, the case is altered; it is no uncommon thing in these days to find whole rows of dwarf pears in the gardens of our nobility, bearing as freely

as the old orchard pear-tree, and yet occupying no more ground than a full-sized gooseberry-bush.

We have had much experience in the dwarfing of pears, having directed our efforts unceasingly to this end for the last twenty years, and having met with an amount of success second to no person, we therefore proceed to offer advice with boldness. As the subject is necessarily one of considerable extent, we cannot hope to give complete directions (for these we intend to be very explicit) in a single calendar, we

* It is a variety so excellent that we wish it to be generally known. Any one enclosing two postage-stamps, directed "To the Editor, COTTAGE GARDENER Office, 147, Strand, London," shall have two or three seeds enclosed by post, accordingly as our seed may equal the demand.

must, therefore, divide the subject under the following heads:

1. Stocks, soils, etc.
2. Modes of rearing, training, pruning, etc., in the young state.
3. Modes of pruning and training when in a bearing state.
4. Root pruning.

These divisions of the subject we hope to deal with successively as occasion serves:

1st. STOCKS, SOIL, ETC.—Pears are grown on two kinds of stocks—the ordinary pear-stock, otherwise called a free-stock, and on the quince.

The pear-stock produces a stronger and longer enduring tree; much longer, also, in coming to a bearing state; it will also grow and thrive on soils on which the quince will scarcely exist. This, therefore, is the most proper stock for ordinary orchard pears. A quince stock is notorious for causing the tree to assume a dwarf and bushy character; this is a mere consequence of a much less vigorous root-action. For this very reason the trees come much sooner into bearing, but they require a much more generous soil.

It so happens that some kinds of pears are of delicate growth, or they are such very fine bearers, that it becomes advisable, even under a dwarfing system, to graft them on the free or pear-stock, in order to meet the heavy demands on the tree, or to induce a more vigorous growth. These we will particularize in our select list of pears.

Almost any ordinary soil, if not too sandy, will grow the pear on the free stock. We have known them succeed to admiration on both sandy and clayey loams, on soils of a calcareous (chalky) character, and on shingly or gravelly soils, provided there was some degree of adhesiveness in their constitution. The quince stock, on the contrary, will never answer on hot or sandy soils; and where the quince plant (ungrafted) will not succeed, it is vain to think of planting it when grafted. This fact we would particularly impress on the mind of both the amateur and the cottager; for through a comparative disregard of such practical facts, the quince stock has most frequently been praised beyond its merits on the one hand, or by far too lightly esteemed on the other. The soil in which, above all others, the quince will both luxuriate and continue in permanency, is a soil which possesses the features of alluvium.* We do not mean that it must be alluvial soil, but that the well-known texture of that material must at least be imitated. That this is possible in an artificial way we have long since proved; for we have a *Beurrée d'Arenberg* pear-tree on a quince stock, and growing as an ordinary dwarf standard, within a hundred yards of where we are writing. Now we have taken fruit from this tree for years, superior to that from the same kind on a south wall, and that in a northern district, in which it is generally understood that such kinds as the *d'Arenberg* cannot be grown as an ordinary standard with success. The mixture in which this tree was planted was composed of equal parts of strong adhesive loam, black vegetable matter, or humus, (such as is found at the bottom of old wood stacks,) and fine gray sand; in this the quince seems quite at home. Permanency of moisture is one of the main requisites for the quince; indeed, without this no compost can be expected to answer.

When it is taken into consideration how small a quantity of soil will maintain a dwarf pear on a quince

* *Alluvium* is fine fertile soil, such as is found in valleys, washed down during the course of many years from the higher-lying lands.

stock, it will readily appear that it is quite practicable so to improve the soil in any small garden, as to adapt it to the quince stock. A compost of this kind may be readily got together. The furrowings of low or clay soils might form the principle staple; in addition to which, abundance of old rotten vegetables, tree-leaves, or even old and spent tan might be added, and a good sprinkling of any fine sand. These materials, collected a few months previously, and turned a couple of times, would doubtless form a proper compost for the quince. We have even seen ditch-scurvines in the neighbourhood of trees, which had lain on the bank to mellow for some time, which would alone have been complete, or nearly so, for the cultivation of the quince. A little very old manure would be a benefit, as it is not easy to overexcite the quince. As to quantity, we should say that six wheelbarrows full of this mixed soil would be amply sufficient for a tree on the dwarfing system. The holes should not be made deep, by any means; half a yard in depth of soil will suffice for either the quince or the pear stock, and this should rest, if possible, on impervious materials, such as stones, bricks, or hard-rammed cinder-ashes. We shall say more about modes of planting, when offering advice under the head "Stations for Fruit-trees."

PRUNING AND MANAGEMENT OF STANDARD APPLES.—As the pruning, etc., of large or orchard apples, differs somewhat from that of the dwarf standard, we deem it necessary to offer a little special advice on that head. This work is mostly reserved for frosty weather, and very properly so, for it may be carried out when other matters, especially spade operations, become stationary. Large orchard trees, when in their prime, require very little pruning; once in three years may then suffice to regulate them. Their pruning will simply consist of a slight thinning-out of exhausted or cross boughs, which, situated in the interior of the tree, cannot bring fruit to perfection, and in bearing, rob the superior parts of the tree. When, however, the trees become somewhat aged, they require more attention; for when it is found that they cannot bring all the fruit which may "set" to perfection, it becomes necessary to sacrifice some portion, in order to throw strength into the remainder.

As long as the tree continues to bear at all, the best fruit will ever be at the extremities of the boughs: nature, therefore, must be followed, or rather, in this case, anticipated. Once in a couple of years the trees should be gone over, and much of their interior wood cut away.

The wearing-out wood may be readily distinguished by its mossy or stunted character, and frequently by its dead points, which are an almost certain sign of the breaking up of the constitution of the tree. There is no occasion to prune the extreme points, the removal of the larger decaying branches will suffice. It often happens, nevertheless, that a good deal of young annual spray grows out of the old branches; such, occasionally, should be trimmed away, or it will decoy the sap from the more important portions of the tree.

TOP-DRESSING OLD APPLE-TREES.—How much manure is misapplied in planting young apple-trees, which would be of the utmost benefit to the wearing-out or heavy-bearing trees. Yet we generally see valuable trees of this kind starving by inches; few think of manuring them. The consequence is not only premature decay in the tree, but a continual sacrifice in produce; for the apples are seldom what is termed "well fed;" and if there be a full crop, they either crack, or become corroded with a rusty fungus, under which circumstances they will lose in a great

degree their keeping properties. The best way to deal with such cases, is to strip away at the end of October six inches of the surface-soil, and to apply a coating of the very slutch of the manure-yard, three or four inches in thickness; after which the turf or some soil may be streved over, to prevent the loss of its fertile properties. This, once in three years, accompanied by a rather severe thinning or pruning, will be found to renew the constitution of the tree in a very considerable degree; the fruit also will regain their size, their clear skin, and, of course, their keeping properties.

THE COTTAGER'S VEGETABLE-GROUND.—In our last Number we hinted at the propriety of seizing on this period of the year to carry out thorough drainage where necessary. We again beg to urge that the foundation of permanent success must be looked for in drainage alone on soils liable to become water-logged. Soils of this description, when laid tolerably dry, are frequently more productive after this operation than soils which are naturally mellow, especially if there be a good depth. In addition, we would

strongly recommend another practice, which causes the soil to dig down with ease in the succeeding spring. We mean ridging the soil in November, piling it up in lines as high as possible. No time should be lost in this matter, as the longer the period in which frost has to act upon it the more mellow it becomes.

Trenching is a most important matter also, especially at this time: some useful observations on these branches of culture may be found at page 30 of this work.

In our next we intend giving a select list of pears, adapted both to the amateur and the cottager; and as our experience in this way results from at least twenty-five years' close practice and observation, we may without presumption beg to direct the attention of both amateurs and cottagers to that list, in which we shall particularize very fully their habits, times of ripening, and their keeping and bearing properties.

R. EARINGTON.

THE FLOWER-GARDEN.

GENERAL FLOWER-GARDEN.—In last week's **COTTAGE GARDENER** was a short paper in which we endeavoured to show the principles of arranging, and the method of planting a new shrubbery. This week we intend to give a few ideas how to renovate an old neglected one—a task we conceive much more difficult than the former. It is comparatively easy to have a plan, and to plant in accordance with it; but to thin out and prune in judiciously an overgrown plantation, requires considerable resolution and skill. In cutting down, perhaps, old favourites, and pruning those that are to remain, so as to form hereafter handsome well-formed shrubs, there must be no flinching, no useless regrets. If a handsome holly and a nice-looking arbutus grow close together, down with one of them, and lop and prune the other most resolutely, so as to bring it into shape, and then new branches will be produced undoubtedly in a shorter time than might be anticipated. We remember the saying, "I never knew an oft-removed tree, nor yet an oft-removed family, that throve so well as those that settled be." Hence an old settled shrub, well cut in, will much sooner attain a handsome form than if we remove a large shrub into its place. We are, of course, supposing there is an old neglected shrubbery, and it is determined to improve it. The same plan should be followed in working out the improvement that we recommend for the new plantation. A certain and sufficient number of shrubs should be marked to stand. Then let all the rest be removed or grubbed up. The ground between those that are left should be well trenched, picking out roots and stones and any roots of bad weeds that may be there, such as nettles, thistles, and docks. All these together, with the small spray, should be charred, and then spread on the surface, which ought to be left as rough as possible, that it may have the benefit of the winter's frost. In the spring, spread over it a coating of rotten dung or rotten leaves. Dig it rather shallow, and you may then fill up the vacancies with such things as we mentioned for the newly-planted shrubbery, viz., standard and dwarf roses, hollyocks, tall showy perennials, dahlias, and primroses, all of which will be pleasing and agreeable to the eye while the shrubs are recovering this somewhat severe but necessary treatment.

If, however, the shrubs are so old and unsightly that, with all the skill and care bestowed upon them, they are not likely to be brought into any thing like satisfactory shape or form, the best way will be, in that case, to grub them all up, drain and trench the ground, and procure good new plants at once, proceeding upon the same plan as we described in our last Number. Whatever way you choose to adopt, now is the best time for such operations. Lose not a day, therefore, but set to work at once, and, if possible, get it done before Christmas.

AMATEUR'S FLOWER-GARDEN: SUMMER-PRUNING OF ROSES.—This queen of flowers will be very much benefited by a judicious pruning during summer. It often happens, where the roses are growing in good ground, that some of them produce branches that grow so strong and fast as to rob the rest of their due support. These branches are what the French call *gourmands*, which may be Englished *gluttons*; cut them clean off as soon as they make their appearance. They may be easily known by their free strong growth. When the rose-trees throw out a great number of shoots equally strong, and they appear to be crowded, prune away about one-third of them, but do not shorten any of the others, as that will cause them to send out a quantity of small weak shoots, which will injure the flowers the following season.

PROPAGATION.—Most kinds of roses can be propagated by cuttings. By this method, it is true, we can only obtain dwarfs; yet as many sorts do best on their own roots, the china and tea-scented for instance, we must adopt the increasing of them by cuttings. They may be struck in various ways,—in pots, in frames, under hand-glasses, and in the open ground.

CUTTINGS IN POTS.—The most convenient-sized pots are those that measure five inches across; fill them with moderately rich light earth nearly to the brim, press it firmly down with the hand, then fill the pots quite up to the rim with silver sand, or if that is not to be had, with finely sifted river sand; give a gentle watering from a fine-rosed watering-pot,* then proceed to prepare the cuttings; cut them into lengths of

* The rose of a watering-pot is that part punched full of small holes.

about four inches, remove all the leaves except those belonging to the top buds, make the cut very smooth across, just under the lowest bud; the cutting is then ready to be planted. Have a small stick about as thick as a quill, and thrust it into the soil just the depth of the cutting, so as to leave the top bud out: close the earth firmly to the bottom of the cutting with the stick; place the cuttings close to the edge of the pots, with the leaves of all pointing inwards, then close up the holes with a little of the sand, and give a gentle watering. The best situation to place the pots of cuttings in is a pit, with hand-glasses over them. If you have not that convenience, plunge the pots in coal-ashes on a shady border, covering them with hand-glasses; they will put forth roots in about six weeks, if the weather continues mild. Should it be frosty, cover the glasses with mats. They should remain in the pots till spring, when they may be potted singly into small pots, to be shifted into larger pots as they require. By the middle of summer you will have beautiful plants. There is a material advantage in propagating roses by cuttings in pots; they can be turned out of the pots, and carefully divided from each other without breaking or materially injuring the roots.

CUTTINGS IN THE OPEN GROUND.—In the second Number of the COTTAGE GARDENER we gave some instructions to the cottager how to strike cuttings of hardy shrubs in general. By the same method roses may be propagated, but the wood should be firmer and better ripened than is necessary if the cuttings are to be under glass, for they will be more exposed to the weather. We would recommend you to try all the sorts you may possess or can procure. If some kinds fail, it is only a little labour lost: in the spring you will soon perceive which will grow, by the freshness of the buds. Examine a few of them, and if they are rooted, lift them carefully with a trowel or small spade, and either pot them or plant them out in rows in a more open situation. By the autumn following they will be nice plants, and may be planted in the situation where they are to grow and flower for several years.

COTTAGER'S FLOWER-GARDEN.—As the culture of flowers may be considered by some of our cottage friends a very secondary consideration, we trust they will excuse us pressing upon them the fact that flowers, though perhaps not apparently and immediately profitable as far as pounds shillings and pence are concerned, yet if the cottager has a family, and he can implant the love of flowers in his children, and through those flowers teach them how good and bountiful the Creator of all things is to provide such pleasant objects to gratify our senses, he is, as it were, sowing the seeds of gratitude and love in their young hearts; which pleasant passion will, as they grow up, make them a blessing to their parents, and better sons and daughters, better brothers and sisters, and better citizens when they come to manhood. All these good qualities may be fostered and brought to maturity by the judicious instilling into their minds in early youth a love of the beautiful and lovely, as exemplified amongst the floral gems of the cottager's flower-garden.

But, independent of the above considerations, the effect of cultivating flowers will be beneficial even to the cottagers themselves. We trust the cottager's wife will love and care for the flowers, and we are sure if she does that her husband's love and esteem for her will be heightened and strengthened, and we will predict, without fear of failing, that the culture of flowers will be the cause of much happiness and pleasure to

the cottager's family, whether large or small. In order to give his children a love of flowers, let each of them have a small plot of ground as their own; give them from time to time a root or two, as a reward for any good act, a display of good temper, or a well-said lesson, and good behaviour at church or school. A prudent father and mother, by bestowing or withholding these rewards, will possess a power to induce good conduct far stronger and better than a threat of the dark-hole or the birch rod.

Another advantage of cultivating flowers is, that they furnish honey for bees; and as we hope those interesting and profitable insects will soon be in most amateur's and cottage-gardens, the growing of the materials from which they extract their sweet store is a consideration of some moment. Besides, the cottager might turn his flowers to a good account, by selling occasionally nosegays to his neighbours.

LAVENOE.—This delightfully fragrant shrub ought to be cultivated by our cottage friends to some extent. The flowers will always be in request to put into clothes-presses or drawers. It may be grown as a division-fence between the flowers and vegetables. It may be propagated by slips or layers. Cuttings of the shoots may be put in about October, in lengths of about six inches, placed in a row, where they are to remain, and to be protected the first season from frost by a covering of coal-ashes, one inch thick, on each side of the row. To propagate it by layers, take the outer branches, and bring them down to the soil, place upon them some light soil, leaving the tops out. Do this in the spring, and in autumn the layers will be rooted, and may be taken off and planted in the row, to divide the flower-garden from the other.

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.—Some inquiries having been made by correspondents concerning chrysanthemums, we purpose devoting this division to their culture. As they can be grown in the open air, it comes under our part of this work. They may be increased by cuttings and layers.

Cuttings should be put in at two seasons: one early in May, the other late in August. The first, to produce strong-flowering plants—the other, dwarf ones. The best situation for the cuttings is a close frame; put them in four-inch pots, four in a pot: in about three weeks they will be rooted; as soon as that is perceived, pot them into the smaller pots, one in each; shade for a few days, until they have taken fresh hold; nip the tops occasionally, to make them dwarf and bushy. As they root and grow very fast, they will require frequent re-pottings. By the end of June they may be planted out where they are to flower; or, if they are intended to flower in pots, let them be plunged up to the rims of the pots after the last removal. Give them abundance of water, and water them overhead with a syringe or rose-pot every evening. By this treatment they will grow bushy, strong plants, and will flower abundantly.

Layers.—Plant out early in spring one of each kind you wish to increase. Give each plant as much room as will allow the branches to spread all round. When the shoots have grown to about eighteen inches, bring them down to the ground, and with a peg fasten them into pots six inches wide, filled with rich earth, placed there, and buried in the bed up to their rims. Cover the part of the branch in the pots with an inch of the same soil, giving water freely. By this method you obtain very dwarf plants, which, for pot-flowering, are

very useful to place in front of the taller ones. Dwarf plants may also be obtained by taking off the tops after they have shown the first bud: this will be towards the end of August. Put these cuttings, six inches long, singly into three-inch pots; plunge the pots into a gentle hot-bed, and cover them with hand-glasses and closely shade them. They will quickly root at that warm season of the year, and may be gradually hardened by giving air in the evening and removing the shades on all dull days until they are able to stand the full light. They will then require potting into pots, five inches in diameter; and in those pots, by giving manure-water occasionally, will flower uncommonly dwarf and fine. The follow-

ing is a list of thirty good sorts, and are not expensive:

Whites.—Defiance, Exquisite, Fleur-de-Marie, Formosum, Lucidum, Vesta, Mirabile.

Purples.—Campestroni, De Crequi, General Macao, Sanguineum, Achmet Bey, Duc de Canigliam, Pilot.

Yellows.—Annie Salter, David, Changeable Yellow, Adventurer, Gouvain St. Cyr, Etoile Polaire, Queen of Yellows, Satyr.

Two-coloured.—Aristides (orange and brown), Bijou (white and pink), Phidias (rosy-red).

Rose-coloured.—Sphynx (maroon), Fleschier, Princess Marie, Reine de Prusse, Queen.

T. APPELEY.

WINDOW AND GREENHOUSE-GARDENING.

DIFFICULTIES OF WINDOW-GARDENING.—The dry heat of a comfortable parlour in winter, and the full blaze of the sun during the summer months, are extremes very injurious to the roots of plants confined to the narrow compass of a flower-pot. In summer, one can lessen the effects of the sun on the pots by placing them in more shady places than can now be done with safety. The large doses of water necessary for keeping the soil in good order under a full sun is not so much felt by the plants in summer, as they are then in active growth, and consume a large quantity of moisture; but in winter they require comparatively but a small portion for their own use of the quantity that must be given to the pots to keep the soil from becoming too dry. The material of which flower-pots are made is so porous, that the pots themselves assist the bad effects of a dry atmosphere, by parting so readily with moisture. This is the reason why plants in a parlour require so much more water than those in a greenhouse, where the air is moist and cool round the pots. In November, and in the early part of winter, the air of a greenhouse is often so loaded with the natural dampness of the season, that fires are necessary to dry the air and counteract the effects of too damp an atmosphere on the plants. No wonder, then, that they require so little water.

WATER.—Many persons imagine, because their plants, or rather their flower-pots, get dry so often in the window, that the plants themselves require, or consume, the quantity given to keep them when in health and growth; but the truth is, plants would be much benefited if by any means the daily waterings could be lessened. Many contrivances have from time to time been tried to effect this, such as placing the pots in china vases, fancy jars, and the like; and capital things for the purpose these are, if one has them at hand, or is able to buy them, for they shade the sides of the flower-pots and keep them cool, so that the dryness of a room does not affect them nearly so much as when exposed in the usual way. Besides, these fancy articles may be beautiful in themselves, and so help to make a room look smart, and also heighten the beauty of the plants they aid in protecting. Flowers, like children, will bear to be a little over-dressed, and they always look best when everything about them is clean and tidy. If there is any rule that we should be guided by more than another in selecting our plants and other fancy articles for the decoration of our rooms, it is that we should never prefer expensive things beyond our means, as some silly persons do, with a view of making others believe that they are richer than they really are, and

that they can afford to purchase costly articles of dress and ornaments. Such attempts always fail, for persons of common sense only laugh at such follies. On the other hand, few can fail to appreciate a simple, cheap, and effectual contrivance for any kind of use, but more especially when to heighten the beauty of our plants is the object in view. The simplest and most effectual means that have hitherto been adopted to protect flower-pots from the effects of either dry warm rooms or hot sunny weather, is to double pot them: that is, by placing the flower-pot in which a plant is growing inside another pot, one size larger. Double potting is still more effectual if two kinds of pots are used, the common tapering pot and the upright or bulb-pot. The latter is more deep according to the width than the tapering sort, and should be used as the guard or outside pot, as being deeper. The tapering pot will hang inside by its rim, and be an inch or two from the bottom of the guard-pot, thus giving a greater facility for drainage than if the inside pot rested on the bottom of the other. But the greatest advantage of using two kinds of pots is, that the guard-pot may be placed permanently in a saucer of water. The bottom of the flower-pot will stand above the level of the water, so that the soil or drainage cannot be injured by it. In hot weather and in warm rooms the heat will cause the water in the saucer to rise in vapour between the two pots; part of this vapour will find its way into the roots through the drainage-hole, and help to nourish the plants, whose most active roots are always at the bottom of the pot. The vapour between the two pots will keep the inside one cool and damp, so that the roots inside it can stick to it comfortably, and feed on it as an ivy would feed on a damp north wall. I have seen thirsty plants flourish exceedingly when treated exactly as here described, though in a very warm room, and they did not require to have water given them more than once a week, and some of the plants not so often. If a layer of green moss be placed on the top of the pots, the whole would be very complete and no one could see that two pots were used. Moss is an excellent thing on the top of pots in a window, as it lessens the evaporation from the soil, and being kept moist, the roots will work up to the surface, and thus occupy the whole ball, instead of crowding as they always do at the bottom of the pot. When plants in flower are placed on a tray or basket, to stand on a table in a sitting-room, if moss could be obtained the pots should be packed in it, and a layer of it placed all over them, so that the pots would be entirely hid. In that case double potting would not

be necessary, as the moss would answer the purpose just as well.

There are some soft-wooded plants—such as, for instance, cinerarias, Chinese primrose, etc.,—which can hardly be brought from a cool damp greenhouse at this season into a dry warm room without sustaining some injury from the change of temperature; therefore, whenever it is convenient, such plants should be inured to the change by degrees—as by having them first removed to a cool room for two or three days, and then to water them, and secure their pots as above, before they are placed in the sitting-room. Plants purchased from hawkers in large towns, are often ruined in a few days for want of this precaution.

Methinks I hear the reader exclaim, “You are dwelling too long on such simple matters.” Not so, however; let us first creep before we attempt to walk. The whole secret of good gardening lies in simple facts derived from natural laws. The simplest rule in gardening is all Greek to those who never have paid attention to such subjects; and it is only by minute details that we can hope to benefit this class, who have yet to learn the very alphabet of plant-culture.

HYACINTH.—This is a good time to finish off potting hyacinths; but with ordinary care they may be safely potted for the next three weeks. Few plants pay for a little extra attention better than the hyacinth; but under bad management it soon gets out of condition, and is very difficult to bring round again; I shall, therefore, treat of the different modes of growing it with some minuteness.

Although hyacinths will grow in almost any kind of soil, and even for a season without any soil at all, as we shall see presently, yet it is of the greatest importance to choose fresh light soil moderately rich for them,—say two-thirds fresh loam, or good garden mould, and one-third leaf-mould and sand, in equal proportion. In the absence of leaf-mould, the next best substitute for it is the refuse from under a wood-stack passed through a coarse sieve. In large towns, proper soils for pot-plants is so difficult to procure, that it is safer to buy it from a nurseryman, especially for a favourite tribe like the hyacinth. Bulb-pots, mentioned above, should always be used for hyacinths. Those about six inches deep, and from five to six inches at the mouth, are the proper size for a single bulb. Drain the pots by putting in an inch deep of potsherds and bits of charcoal, lay an inch of the coarse siftings from the leaf-mould over the drainage, then fill with the compost to within half an inch of the top, leaving the point of the bulb just level with the surface; then give a slight watering through the rose of a watering-pot, and the work is finished. Some people never bury their hyacinths in the mould, as above, but merely press them on the surface, leaving full two-thirds of the bulb exposed; and this answers very well for nurserymen's shop-windows, or indeed any cool situation. When they are intended for a sitting-room, however, it is much better to bury the whole bulb, as the heat and dryness of a room will assuredly injure it when left exposed on the surface, by extracting from it the moisture which should go to feed the leaves and flowers. In their natural state hyacinths are never seen on the surface, like so many turnips in a field; and the only reason in defence of so unnatural a practice is, that the roots will have more space to feed in when the bulb is on the surface; but this is “a penny wise and pound foolish” argument, for every atom of nourishment the roots gain by the practice, the bulbs, in a dry room, lose twenty in the way I have described. Another very essential

point to be attended to is, never to water them with cold water; every dose of cold water chills the roots and retards their action, and the leaves, in consequence, draw their nourishment from the bulb faster than the roots can supply it, owing to their chilled slow circulation, and before the flowers appear the bulbs will have lost half the nourishment destined to produce large handsome flowers. This is worse than leaving the bulbs exposed on the top of the pot, as the leaves will exhaust them much faster than the heat of the room. Lukewarm water, on the other hand, will keep the roots in active work, enabling them to snappy the necessary food as fast as it is required by the plants. After watering, place the pots in some *dark* out-of-the-way place, but not in a cold situation, till the leaves are an inch out of the ground; then turn out the ball of one or two, and if you see the roots coming through the soil, all is right, and you may bring them to the window; if no roots are to be seen, they have been kept in a place too hot for this stage of their management, which has caused the leaves to grow faster than the roots, whereas the roots ought to be in advance of the leaves, and that is the reason for setting them in the dark, as leaves are not so readily put in action as roots in the absence of light. The leaves of bulbs are fed, in the first instance, from the substance of the parent bulbs, and if that bulb has no roots, or only feeble ones, to supply itself in like manner, it will soon shrivel up, or get so exhausted as to be able to flower but weakly, if at all. A familiar instance of the case in point will be found in a sprouted onion in the store-room.

GROWING HYACINTHS IN WATER-GLASSES.—The safest way to proceed with bulbs of any sort intended to flower in glasses full of water, is to plant them first in loose sandy soil till they make roots at least three inches long; these should also be in the dark during the first stage of growth; they may then have the soil or sand washed off them, and their roots introduced carefully into a glass containing luke-warm water, the water being only high enough to stand clear of the bottom of the bulb: every four or five days the water must be renewed, and always in a luke-warm state. Dark-coloured glasses are said to be better than light ones, and the reason why they are so is feasible enough, the roots growing stronger the darker they are kept: but I think this is all fancy, for I could never perceive any difference, whatever kind of glass was used. But why not have different coloured glasses as well as different coloured flowers? At any rate, the experiment is worth trying fairly; but gardeners have too much business on hand to do the thing properly; and if it is to be proved at all it must be done by an amateur.

GROWING HYACINTHS IN MOSS.—The hyacinth will grow in flower-pots filled with fresh moss as well as in a compost of good mould. The bulbs will be as little exhausted the one way as the other, and they are less liable to injury in moss than in soil, but in water they are always much weakened and difficult to restore afterwards. Indeed, unless they are very carefully attended to in glasses of water, they seldom recover at all. One great advantage of growing them in moss would be, that several bulbs might be planted together in a wide-mouthed jar, or any ornamental vessel, and, owing to the lightness of the moss, they might be carried to any part of the house or room at pleasure. Their colours might thus be finely contrasted or arranged in any fanciful device, and make quite a flower-bed on the centre of a table.

EARLY TULIPS, NARCISSUS, AND CROCUSES, may be treated in the same way, but they are not so particular

about soil as the hyacinth. The crocus will not stand even so much heat, at the first stage of its growth, as the hyacinth, and should be turned outside the window every fine day for a few hours. If its leaves grow two inches long without the appearance of flower-

buds, the place is too hot for it, and unless it is put into a cooler place, flowers will hardly appear at all. This often happens to many plants by their being exposed to too much heat at first.

D. BEATON.

THE KITCHEN-GARDEN.

CAULIFLOWERS.—Young plants should be kept close to the glass, if in frames; the decayed leaves constantly removed, and the earth's surface kept open by frequent stirrings, which will enable the plants to maintain a healthy sturdy growth. Keep them uncovered at all favourable times, and when the weather is not favourable, tilt the lights front and back, and sift amongst them on fine days dry dust. Old, dry mortar, loam, and charcoal dust are most excellent articles for such a purpose, mixed in equal portions, or even separately. It keeps the plants free from damping and cankering, or getting black-legged—diseases so prevalent in the short dark days of winter.

PEAS.—The first full crop of early peas should be got in forthwith, and those now up should also have a little dry dust, as above directed, sown amongst them, and the earth's surface, of course, at all favourable opportunities should be stirred.

RADISHES.—Those who have a spare frame, a turf-pit and protection, or even a warm corner, should now sow a few short-topped radishes. Those already up should be timely attended to in the way of thinning, surface-stirring, and the application of dry dust, sifted carefully amongst them, to maintain their healthiness and sturdiness. They must, of course, be well aired: our custom is to drill, at all times and seasons, radishes as well as everything else; and all through the winter season to drill between the radishes early carrots, either if sown in-doors or out. The drills are quickly and evenly formed with a narrow piece of board, with its edge cut in the form of the letter V; this edge pressed into the surface forms the drill; each drill at this season at 3-inch intervals. This brings both radishes and carrots to six inches distance from their own family connection,—the radishes proving very good nurses for the carrots, if, as I have stated, they get thinned in due season, and otherwise treated as directed, and occasionally a little weak, tepid manure-water is applied, every radish will become fit for table, and will be cleared quickly off; and in due season for the free growth of the carrots. Drilling has many advantages besides the convenience of hoeing and surface-stirring; for soon after the appearance of the seedling plants, weak manure may be applied, at the desired spot, to encourage part, or the whole of your crops, as may be convenient, without causing any unnecessary waste. Besides, what an advantage it is for putting out, in due season, succeeding crops, plants of some kinds of vegetables, which you may have in condition for planting, when the season and weather are favourable. These may be planted between a crop that is drilled, even before the whole of that crop is cleared, and the soil afterwards forked up between the rows, and dressed with either solid or liquid manure. This kind of practice is making the most of the soil, by keeping up an uninterrupted succession of vegetables of various kinds throughout the season;

and the soil requires no rest if our directions are fully carried out. Even if the crops are not required for use when come to maturity, it will pay thus to grow them, if merely to dig or trench them in for manure.

SMALL SALADING, sow in succession. These wholesome plants (mustard and cress) may be grown in any warm room or window, in pans, shallow boxes, etc. If cold weather, they may be placed near a fire-place of a night, which forwards them much.

MANURE.—Collect all kinds of refuse, to decompose for manure; and that which is not likely to easily decompose store up for charring in the spring; which will be turning it to a valuable account.

MUSHROOM-BEDS.—In answer to various inquiries, we reply that a mushroom-bed is usually constructed of stable dung, prepared, as already directed, for cucumbers. It is made in the form of the roof of a house, or the letter Λ inverted, four or five feet wide at the base, narrowing to the top, which should be rather rounded, three or four feet high, and the length from ten to fifty feet; the dung being laid in alternate rows, with clayey loam, from which the largest stones have been sorted; each layer of dung to be a foot thick, and of loam four inches, so that three layers of each will be sufficient to complete the requisite height. The dung must be well separated and mixed, and beat, but not trod down. When completed, the bed must be covered with litter or other light covering, to keep out the wet, as well as to prevent its drying; clean dry straw will do, but sweet hay, or matting, is to be preferred.

Situation.—The bed should be made in a dry sheltered situation, and on the level ground, in preference to founding it in a trench, which prevents the spawning being performed completely at the bottom, and guards against the settling of water, which may chill it. If the site is not dry, it must be covered with stones, clinkers, etc., to act as a drain; for nothing destroys mushrooms sooner than excessive moisture, except an extreme heat or cold. To obviate the occurrence of these unfavourable circumstances, it is far more preferable to construct the bed under a shed. If it is constructed in a shed, it may be built against one side, sloping downwards from it. To proceed with greater certainty during the winter, a fire-flue may pass beneath the bed; but it is by no means absolutely necessary, for by the due regulation of covering it may always be kept of sufficient temperature.

Management.—The spawn must not be inserted before the temperature has become moderate.

Temperature.—The minimum is 50°, and the maximum 65°. Insert the spawn as soon as the violence of the heat has abated, which it will in two or three weeks, though sometimes it will subside in eight or ten days.

J. B. & G. W. J.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 5.)

BEFORE the severity of winter begins, many pleasing operations should be effected in the garden. This is the best time for renewing the soil, and making any alteration you may wish in the beds and borders. Round and diamond-shaped beds, I think, display flowers to the best advantage, but of course the shape and size must depend upon that of the garden. Plants taken up with a good ball of earth, will, at this season, remain safely out of the ground for some time, till your alterations are completed.

Bulbous roots should now be planted, perennials divided and replaced, suckers removed from shrubs, evergreens, roses, etc., and everything arranged for good effect next year. Flowers should not be stuck into the ground anyhow, and anywhere. They are, indeed, always beautiful; but a little care and judgment is necessary to display that beauty fully. Large rambling plants frequently smother the smaller ones, and by that means we lose the benefit of many sweet varieties. In large borders, large plants do well; the iris, for instance, the peony, saxifrage, lilies of various kinds and colours, columbine, and other showy perennials; but in small borders or separate beds, care should be taken to place each flower so as to appear to the best advantage, and not crowd and overpower each other.

Anemones are beautiful spring flowers, and greet us very early in the year. They look extremely well as borderings to flower-beds. A double row looks very rich and lively, especially when the scarlet ones predominate, which they should do, as their warm colour best suits the cold gloomy season in which they first appear, but the other colours are soft and pleasing, when placed judiciously among their more brilliant brethren. Anemones must be planted now. When you separate the roots, do not break them into very small pieces, or the plants will be weakly, and be careful that every piece possesses an eye or bud. I prefer anemones placed thus, or in beds by themselves; they look well, also, filling up the little circles round single trees or shrubs, which are often left empty, and look bare and desolate. They should be planted about six inches apart, and two or three inches deep. The gentianella is another plant of great beauty, adapted for whole beds or borderings. Its rich, deep blue, bell-shaped flowers dazzle the eye with their intensity, and add greatly to the beauty of a spring garden. It may be divided at any season, and will soon form a luxuriant mass. Bulbs look best in clumps. A tulip or two, standing here and there, look poor and insipid; but as groups, or in a bed by themselves, they appear to great advantage. I confess I admire extremely the commonest kind of tulips,—the simple pink or yellow, which so frequently decorate the cottage borders. They are so gay and lively, that, among other and better flowers, they add much to the general effect. Jonquil and narcissus should be grouped in the same way. They are no favourites of mine; I do not like their bloom or scent, but they are generally admired and cultivated. Hyacinths—these fragrant treasures of the spring—may be placed separately with better effect, but they look best when placed together at even distances, and with some attention to the mixture of their colours. By placing violets among them, the green foliage forms a sort of carpet at their feet, and in some degree

relieves the formal appearance of the bed. Ladies cannot always succeed in having very fine hyacinths; but even common ones look well when clustered together, and need little care, except that of renewing the soil, which benefits every plant. A group of white, pink, and blue hyacinths, is a beautiful addition to every border; and their fragrance in the open air is exquisite. The tall white and orange lilies should be placed behind other plants, or in shrubby borders; they are too tall and unwieldy for smaller beds. Preserve the white leaves of the former in brandy; they are a valuable cure for cuts and wounds. Many are the useful qualities of plants and flowers—nothing has been made in vain! Did not God himself declare that all things were “very good?”

That sweet gem of the soil, the violet, should be extensively encouraged. They may be divided now, in moist weather, but not into very small plants. They like a good, light soil; but manure is too enriching for them. The best dressing for violets is leaf-mould—with which every garden should be provided—and the sweepings of the ground after the removal of an old wood-stack. Violets form a beautiful carpeting under trees: let them nestle in every green spot—under seats—on banks—in short, everywhere. They are so fragrant, yet so lowly, that they read us a beautiful lesson, if we will but hear it. The double violet requires to be a little more cared about. It must be divided every year, and light, fresh soil applied. Hepaticas are rich and lovely spring flowers,—deep pink and blue. Plant them in tufts, and in every border; you can scarcely have too many.

My favourites, snowdrops and crocusses, scorned as they often are, must not be forgotten in our preparations for the coming year. They are childhood's favourites too, and lead our thoughts many, many years back, to days in which a bright flower and gaudy butterfly could gladden our hearts, and dry up our bitterest tears. Let us cultivate these remembrances of the past, for they wake up many pleasant feelings, and may lead us to number our days so as to apply our hearts unto wisdom. Crocusses are pretty bordering-flowers, and gleam cheerily through a mantle of snow, in their yellow, white, and purple vests. Snowdrops should be in masses; they look well in nooks and corners of the lawn, as well as in the borders, and are the first heralds of the spring.

This is a chapter upon spring, written in the dark and sleety month of November; but we must, even at this dreary season, prepare for warmer and sunnier days. Our garden speaks loudly to our hearts; in this particular also, bidding us look forward to that glorious futurity, for which we, too, must be prepared. How short a period of the year is that in which we have no flowers!—scarcely more than a few short weeks; and then, almost as soon as Christmas has passed away, what a gush of loveliness, and burst of song, arises! as if Nature herself rejoiced in that blessed season, and added her praises to the deep thanksgivings that should flow from the heart and lips of men.

The early flowers of spring open their glowing blossoms amidst frosts, and snows, and storms, like the blessings so often sent to cheer us under the troubles and trials of life. They should be prized and encouraged, for our garden soon repays us for our care, and glitters in the frosty sunshine of the early months, like fairyland.

Verbenas, which require care and protection during

the winter months, if planted in *rock-work*, will live throughout the year in the open air, and look to great advantage in that situation during the summer. Their rich and various colours add much to the beauty of the garden. *Rock-work*, if judiciously formed, without care and cockneyism, has by no means an unpleasing effect; but it must be thrown together naturally, and well covered with plants and creepers. The stonecrop, with its gay, yellow flowers, is a plant very well adapted for *rock-work*; it spreads rapidly, and is hardy and long in bloom. Beautiful and abundant provision is made by an all-wise and mighty Hand; for every spot of earth, and even stones and flints, furnish a dwelling for Nature's treasures.

SOOT AS A MANURE.

Everybody wishes to manure his land at the least possible expense; and unless it be well done, it will never be productive. I know scarcely of any manures more efficacious than soot; and as it is in the power of every person to obtain without the least expense, few should be without it. The following result of a trial I made with it upon three

dozen cauliflowers will at once be convincing of its power as a fertilizer. I spread it round each plant about a foot in diameter, and from a quarter to half an inch in depth; those plants treated in this manner were ready to gather two or three weeks sooner than the others in the same piece of ground. The benefit accruing from the use of soot is twofold,—it not only acts as a powerful fertilizer, but is also a preventive to the attacks of slugs. My plants were infested with these snails, when I examined them at night I found those plants with the soot round them quite clear, while the rest were, as usual, attacked by them. As to its being in the power of every person to obtain, I can only say, that every chimney in which a fire is constantly kept requires sweeping at least every four months; and how few sweeps would be at the trouble of conveying the soot away if they were permitted to leave it. I consider that the sweepings from one chimney would be sufficient to spread round six dozen plants, consequently in a year's time sufficient soot would be gathered to treat two hundred and sixteen plants in the manner I have described, provided the chimney be swept every four months.

A. A., *Birkenhead*.

TO CORRESPONDENTS.

POTATO EYES (*Rev. P. W.*)—We think these would all fail if planted in the autumn, but we never knew of the experiment being tried. We always plant whole potatoes, averaging in weight about two ounces each. We do not see the advantage of leaving potatoes in the ground where grown, over the plan of taking them up and storing them in alternate layers of earth. We have tried both modes, and both succeed equally well; why, then, not take them up and store them in that manner?—and under a shed is best. You will then be able to pick the small potatoes for planting at once. Large potatoes do equally well for planting as small ones, but then there is an unnecessary waste of food.

MELON-SEED (*O. S.*)—We think it probable, if our correspondent wrote at once to Mr Williams, of Pitmaston, he would send him a few of the hardy melon-seeds. Something about mushrooms is in No. 5, and we have more about them in our present Number. We think our correspondent will find every vegetable mentioned in its turn during the weeks of the month. The calendar alluded to was prepared by the editor of this paper.

TANK-SYSTEM OF HEATING (*M. S.*)—The following is a brief outline of this excellent mode of heating green-houses and hot-houses. If you require plans, you will find them in a little pamphlet entitled "A Treatise on the Tank-system," by Mr. Rendle, and in the "Gardener's Almanack" for 1844, which may be had at Stationers' Hall:—"A tank of iron or wood, twenty feet long, five feet broad, and six inches deep, is constructed in the centre of the house, and surrounded by a walk, except at the end, where the boiler is fixed for heating it. The top of the tank is covered with large slabs of slate, cemented together, to prevent the excessive escape of steam. Around this is a frame sufficiently high to retain the bark in which the pots are plunged. The boiler and tank are filled with water, and this circulates, when the fire is lighted under the former, by means of two pipes,—one from the top of the boiler, and the other returning nearer to its bottom. The expense of piping, and danger of the pipes freezing, is avoided: the fire only requires to be kept lighted for two hours at night, and again for the same period in the morning; the water, when once heated retaining its temperature for a long time. In a small house the apparatus can be constructed for £3, and in all, for less than half the cost of hot-water pipes."

HOYA (*E. P., Albany-road.*)—This is often called "The Wax Plant." It belongs to the Pentandria Digynia class and order of Linneus, and to the natural order, Asclepiadaceae. The room we could spare for botany would be too small to be useful. Those who wish for a cheap book on the subject will find one in Chambers's Educational Course. More expensive, but more complete works, are those by Dr. Lindley.

POTATOES ON CLAY SOILS (*G. W. Pretty, Esq.*)—If whole potatoes are employed the slugs will not injure them, and none other than whole potatoes should be employed in autumn-planting. Why not order the COTTAGE GARDENER through your bookseller at Harlestone? If he has a weekly parcel, you would have it for twopence per number.

LAYERING, SOWING, ETC. (*An Amateur and constant Subscriber.*)—Instructions for these and all other practices will appear in due course. Remember, we have but a limited space, and cannot insert everything at the same time.

SUCCESSION OF FLOWERS (*W. X. J.*)—You will find a list of flowers in our fourth Number, p. 34, which if planted now will keep up the succession you require.

AUTUMN-PLANTED POTATOES (*D. Darley, Birmingham.*)—Autumn-planted potatoes, those planted in November, for instance, do not produce their leaves above the surface so early as those which are spring-planted, so that they are not so liable to be cut off by the frosts. We never recommend late-ripening potatoes. Plant ash-leaved kidneys and Julys, or any other early-ripening kind.

ERROR (*J. Roberts.*)—It was corrected in our third Number, at p. 30.

VERSES (*A lover of the Rose.*)—Thanks for a perusal of the verses of your friend, we have done with them as you directed.

WATERING FLOWERS IN POTS (*Un Français.*)—Do not water over their leaves. You will find much upon the subject in our columns this day. Chrysanthemum seed is sown in the spring in any open border of the garden. We would recommend you to apply to the preparer of the carbonized manure for the instruction you require.

CHARRED MATERIALS (*J. W. Ashton-under-Lyne.*)—You will find some information in our next Number. Any charred vegetables mixed with rich-soil takes away the most offensive portion of its stench; and if some gypsum (plaster of Paris) is also thoroughly mixed with it, the smell is entirely removed. The carbonized peat is a good manure, but any charred or carbonized vegetable matters are quite as good.

GARDENERS' DICTIONARY (*Waterhampton.*)—Thanks for the compliment.

WILLIAMS'S MODE OF MELON-GROWING (*R. M. R.*)—The rubbish need not be put together in forming the bed until within a few days of the time of placing in it the plants. Mr. Williams does not use a frame, but only hand-glasses. The proper time for planting must be the end of May, or early in June, accordingly as the season is mild or the contrary. The plants must be watered in dry weather, and we should give it early in the morning. An inquiry directed to John Williams, Esq., Pitmaston, near Worcester, would doubtless obtain information relative to the seed you require. If Mr. Williams cannot supply your want, he will tell you what variety succeeds best with him. In the absence of such information we should try either the Early Cantalupe or the Netted Cantalupe, they are early and good, though small, and among the hardiest of the varieties.

GAS LIME (*J. M., Dublin.*)—Thanks for the extract. There will be some information on this refuse as a manure in our next.

WEEKLY CALENDAR.

M D	W D	NOVEMBER 23—29, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun	Day of Year.
23	Th	St. Clement.	Convex Wood-sorrel.	34 a 7	111	4 42	27	13 18	328
24	F	Larch leafless.	Starry Stapelia.	36.	58	5 45	28	13 0	329
25	S	Mich. Term ends. Catherine.	White Butter-bur.	38	57	sets.	●	12 42	330
26	SUN	23 SUN. AFT. TRINITY. Oak leafless.	Linear Wood-sorrel.	39	56	4 a 51	1	12 22	331
27	M	Anniversary of Botanical Society.	Lupine-leaved ditto.	41	55	5 33	2	12 2	332
28	Tu	Elm leafless.	Variegated Stapelia.	42	55	6 20	3	11 42	333
29	W	Thrush resumes singing.	Hairy Sphenogyne.	44.	54.	7 15	4	11 20	334

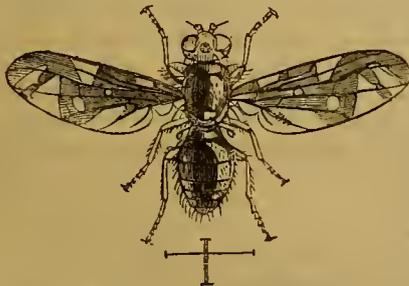
ST. CLEMENT, converted by St. Peter, is thought to be mentioned by St. Paul, in his Epistle to the Philippians (iv. 3). He was bishop of Rome, and married there on this day, about the year 100. He wrote two Epistles to the Corinthians, which still remain, and were once recognised a part of the New Testament. He is the blacksmiths' guardian-saint.

ST. CATHERINE is said to have been tortured by being inclosed within a wheel lined with nails; and this is commemorated in the name of a well-known firework. This virgin is said to have been beheaded on this day, in the year 305, by order of the emperor Maximian. She was the patroness of spinsters; and even yet, in some parts of England, maidens make holiday on this day—or, as they term it, "Go Cathar'ning."

PHENOMENA OF THE SEASON.—These all tell of the coming winter; and when we turn to the garden, we can sympathise with him who said,

"Again I come to view the scene
Whose summer haes I well remember;
'Tis stripp'd of pride, 'tis shorn of green,
Beneath the sway of rude November."

INSECTS.—In the autumn it is very common to observe part of the leaves of celery plants blistered



and remain in the chrysalis state until the spring following, when they give birth to the fly. This, the Celery Fly, may usually be found upon the leaves of the laurel, hovering over flowers and resting upon palings in the sunshine, from the middle of May to the end of July. It is one of the most beautiful of the English two-winged flies, and has been thus described by Mr. Westwood. The general colour of the body, which is five-jointed, varies from rusty-brown to shining black; head buff, with black hairs; legs yellow; thorax (throat) sprinkled with long black hairs; wings black, with various pale spots; eyes green. The whole length of the insect is not more than one-sixth of an inch, and its wings, when outspread, barely half an inch across. The cross-lines in our woodcut show these proportions, as well as the insect magnified. The motions of this fly are very peculiar; seated upon a leaf in the sunshine, the wings are partially extended, yet partially elevated, and it has a sideling kind of motion. The withered leaves of the celery should be picked off, and the grubs within them crushed as soon as seen. Mr. Wedgwood suggests that a string, smeared with birdlime and stretched over the celery-plants, might catch many of the parents,

	1841.	1842.	1843.	1844.	1845.	1846.	1847.
23	Cloudy.	Rain.	Rain.	Fine.	Frosty.	Rain.	Showery.
24	Fine.	Rain.	Cloudy.	Fine.	Fine.	Rain.	Fine.
25	Frosty.	Rain.	Showery.	Cloudy.	Showery.	Rain.	Cloudy.
26	Frosty.	Fine.	Cloudy.	Frosty.	Cloudy.	Cloudy.	Rain.
27	Cloudy.	Rain.	Cloudy.	Frosty.	Cloudy.	Fine.	Rain.
28	Showery	Rain.	Fine.	Cloudy.	Rain.	Fine.	Showery.
29	Rain.	Fine.	Fine.	Cloudy.	Rain.	Frosty.	Frosty.

and turned yellow; and this occurs occasionally to such an extent that their growth is checked and their size proportionally diminished. If the withered parts are examined, and the cuticle, or skin, of the blisters, is raised, there will be found beneath it some small green grubs, who have eaten away all the green pulp (parenchyma) of the parts so withered. These grubs are the larva of the Celery Fly (*Tephritis Oenopordinis*). The grubs may be found in the leaves of the celery in June, July, September, October, and November: for there are two or more broods of them in the course of the year. The grubs, though less frequently, are found doing similar damage to the leaves of Alexanders and parsnips. When full-grown, the grubs descend into the

EVERYBODY must have known some one or more individuals who, in defiance of adverse circumstances, have won their way from ignorance and poverty to all the harvest of pleasures that knowledge and independence afford. We have known many such admirable and noble-minded characters, and they are to be found in every class, in every trade, in every employment to which the wants of society doom the majority of mankind to plod on through life.

We knew a hairdresser, at Witham, in Essex, who, though a labourer for his daily bread at a penny per chin and twopence per poll, yet had acquired a deep

knowledge of entomology, and had one of the finest collections of English insects ever gathered together by one man's unaided exertions. We knew also James Lackington, when he was the most extensive bookseller in Europe; yet he had once been a poor shoemaker! From extreme want, he raised himself to the wealth and happiness he afterwards enjoyed. Inflexible integrity, a love of learning, and living abstemiously, were the means he employed thus honourably to elevate himself; and he found in his wife a worthy helpmate. However narrow their means, they always made them suffice; and he has

"The melody of song is mute,
Except the robin's lonely singing;
The trees have shed their leaves and fruit,
And weeds in ev'ry walk are springing."

The first severe frost of this season in Hampshire—the first to turn the leaves of the Dahlia black—occurred on the night of the 4th instant. The thermometer then fell as low as twenty-two degrees, or ten degrees below the cold at which water freezes. The golden-eyed pouter is now added to our list of sea-coast visitants. The stock-dove has also arrived. Both these migratory birds usually reach us about the 29th instant. Moles have formed their winter retreats. A mole-catcher informed Mr. Jesse, that, previously to the setting-in of winter, this little miner prepares a sort of basin, forming it in a bed of clay which will hold about a quart. In this basin a great quantity of worms are deposited, and, in order to prevent their escape, they are partly mutilated, but not so much as to kill them. On these worms the moles feed in the winter months. When these basins are few in number, the mole-catcher said he knew the following winter would be mild.

left among his "Confessions" the statement that in their hours of privation they sustained one another by singing together these lines by Dr. Cotton:

"Our portion is not large, indeed,
But, then, how little do we need,
For nature's calls are few;
In this the art of living lies,
To want no more than may suffice,
And make that little do."

We might swell our catalogue to many pages with the mere names of those who have thus struggled to eminence through difficulties, but we will merely enumerate a few of our contemporaries, at least men of the present century. Gifford, the Editor of the "Quarterly Review," was a cobbler's apprentice; Bloomfield the poet, and Mortimer the painter had been farming labourers; Emerson the mathematician thatched his own cottage; and the mother of Holcroft, the play-writer, kept a green-stall and sold oysters.

All those and many others have risen to eminence and distinction; but honourable notoriety does not always fall to the lot of those who have attained to an equal degree of knowledge; and as certainly that eminence and distinction are not its best rewards. Hundreds of men in humble life may now be found deeply skilled in the natural sciences,—in the knowledge of plants, insects, and birds, especially,—who yet are never heard of, never seek to be heard of, content to earn their livelihood by honest industry, and to pursue knowledge during their hours of leisure purely and solely for the pleasure it unfailingly yields. We could place our finger upon many such; and we can add, for the encouragement of our cottage readers, indeed for the encouragement of all, that they are to a man worthy, happy, and respected. One of them is just "gathered to his fathers;" and he was indeed ready for the garner, for he was as full of hope, and faith, and honour, as of years. We shall not attempt to improve upon this record by one who knew him well:

DEATH OF THE FATHER OF THE LANCASHIRE BOTANISTS IN HUMBLE LIFE.—On Thursday, October 26th, at Royton, near Oldham, in his 82nd year, died Mr. John Mellor, gardener, who, both by his

age and attainments, has long been considered the father of botany amongst the working men of Lancashire. This venerable old man remained in possession of his mental faculties nearly to the day of his death. His remains were deposited in Royton churchyard, and the funeral was attended by most of the botanists in humble life living in that part of Lancashire and the adjoining county of York. The deceased was born at or near Royton, in the year 1767, of parents in humble circumstances, and followed the occupation of a handloom weaver for a few years, when he commenced cotton spinning on a jenny. This last-named employment he pursued until he was thirty years of age, when he left it and became a working gardener, a pursuit more congenial to his taste. In this occupation he remained for upwards of half a century, as fine a specimen of a cheerful, vigorous, and hale old man as could well be seen, to within a week of his death. John Mellor had for his first companions the late John Dewhurst and George Cayley, both of Manchester—the former then the president of the Botanical Society of Working-men, and the latter since well known as the botanist who accompanied the late Sir Joseph Banks to the South Seas, and brought home a fine collection of plants, now at Kew, one of which, the *Banksia Caleyi*, was named after him. After having explored the plants growing in his own neighbourhood, Mellor made annual excursions into Yorkshire and the northern counties, and afterwards into Scotland, for a period of thirty years. Six times did he traverse the Highlands of Scotland, and ascended Ben Nevis, Ben Lovers, Ben Lomond, the Breadalbane, the Clova, and many other mountains. The plants he found in these excursions he brought with him to Edinburgh and Glasgow, and furnished specimens to the late Mr. Don and to Sir W. Hooker, then Dr. Hooker; by both of whom he was well known and highly esteemed. Other specimens he brought home, and cultivated in his own garden at Royton.

The last two pages of the present Number are requested to be substituted for the two pages of our third Number, 21 and 22.

THE FRUIT-GARDEN.

SELECT LIST OF PEARS adapted both to the amateur and the Cottager.—We now proceed to fulfil our promise as to this valuable fruit; but must precede the list with a few observations, which will prove of service to those making a selection. In recommending pears to the cottager, it is indispensable to point only to those which are known as *sure bearers*, and, therefore, profitable kinds. The cottager must be content to give up a point occasionally, as to highly-melting properties in the kinds he grows, and even flavour, for the sake of the essential of profit. The sacrifice in this way will not be very considerable; for it so

happens that most of our superior modern pears are sure bearers. We think it necessary, nevertheless, thus to anticipate objections which may be raised as to some kinds we recommend; for, be it remarked, the evidence concerning this fruit from various parts of the kingdom is of so contradictory a character, that the high commendations of a given kind which come from a southern country, with very great difficulty find belief in a northern one.

With regard to the amateur, the case slightly differs. We are aware that bad bearers should not be recommended to any one; still there are some which may

be termed tolerably safe bearers, and of which the quality is such, under proper circumstances, that no amateur would like to be without them.

Instead of using abbreviations, which are apt to perplex and cause much reference, we hope to be of more service by giving the character of the respective kinds in detail, the list being arranged according to the order in which the varieties ripen :

1. *Citron de Carmes* (July). This is a well-known early kind, and a good bearer; fruit rather round, and not large; soon mellow. Those who desire a very early pear may plant this, either as a dwarf standard or an ordinary orchard standard.

2. *Jargonelle* (August). As well-known as the preceding. This is undoubtedly the best summer pear in the country; the only misfortune is, that it has long shown signs of what is termed "wearing out," the shoots being liable to canker. It is the custom in our northern counties to plant this pear on the gable of the dwelling-house; in which situation it very frequently succeeds admirably. We think, however, that the Moorpark, or Shipley apricot, would pay much better; and the Jargonelle may be grown as an ordinary standard. Besides, the close pruning necessary to keep a wall-tree in order checks the bearing properties of this tree, which is of robust habit.

3. *Dunmore* (September). This forms a very good successor to the Jargonelle, and is probably a seedling from it. It is a very great bearer, and of a good constitution, and would be worth the cottager's attention as a dwarf standard; or, perhaps, as an orchard tree in the more southern counties. The flavour is good, and it is a melting fruit above the middle size. We would particularly advise the amateur to make this a successor in point of season to the Jargonelle.

4. *Williams's Bon Chrétien* (September). This is a well-known standard market-pear in the neighbourhood of London, and would answer for the same purpose in our northern counties. It is a very good bearer, and strong growing. Fruit long and rather large, but soon decay.

5. *Beurre d'Amalís* (September). This is a very hardy sort, and deserving of extensive cultivation by the cottager, being a very abundant bearer. It is large and melting, and would doubtless prove a good market-pear in its season in our northern counties. Suitable either as a dwarf standard or orchard tree in most parts of England.

6. *Fondante d'Automne* (September and October). This is one of the most sugary pears with which we are acquainted; indeed so rich, that we have not been able to save even one from the depredations of the blackbirds this summer. It is too small for a cottage pear; but the amateur would do well to have a dwarf standard of this kind, and place a net over it whilst ripening.

7. *Louis Bonne of Jersey* (October). This is peculiarly a cottager's pear; indeed it is everybody's pear where the garden is very small. Although not particularly high-flavoured, it is, nevertheless, an agreeable melting pear; and were it once extensively planted (in our northern counties especially), it would soon take in the markets. Fruit rather long, reddish brown and green, and mottled next the sun; about middle size.

8. *Aston Town* (October and November). An old pear, and at the present day second to none in cultivation in point of flavour. We think that it will not pay the cottager so well as larger sorts, but no amateur should be without one; they succeed best as ordinary standards. Small in size and round.

9. *Beurré de Capiaumont* (October and November). Of all the free bearers, this is first. We have several dwarf standards no larger than currant-bushes, which have never missed a crop for sixteen years. Such bushes yield on an average half a bushel each, at least, annually. Fruit middle size, cinnamon-coloured. This would pay well in cottage gardens, and would take in the markets.

10. *Marie Louise* (November). This is so well known as to need little description. It is excelled by none in its season,—indeed, scarcely equalled. We dare not, however, recommend it to the cottager, unless in the southern counties. It is peculiarly adapted to train on the gable of a house in the northern counties; on an east or west aspect it would answer well, whilst the south might have an apricot.

11. *Althorp Crassane* (November). A very good and free bearing tree, generally spoiled by being placed on a wall. Fruit round, middle-sized, of a dull greenish brown. Well adapted for a dwarf standard in the northern counties, or for orchard trees in the south.

12. *Beurré Diel* (November and December). For dwarf standards in the cottager's garden, this pear would perhaps prove more profitable than any in the kingdom; for in addition to its free bearing properties, it is of great size, and will keep a good while. Having a sound skin, it would carry well to market. Fruit round, very large; a dull green, with some freckles.

13. *Passe Colmar* (December and January). A great bearer, and adapted for dwarf standards in our southern counties, but requires a wall in the north. Fruit nearly round, middle-sized, and of a pale green. This pear has the desirable property of bearing on the last year's shoots.

14. *Hacon's Incomparable* (December and January). Hardy, and a free bearer; this is everybody's pear. Fruit middle-sized, roundish, and of a brownish green. The flavour is good, and it is very melting.

15. *Glout Morceau* (December to February). A robust tree, which will answer well on the quince in our southern counties as a dwarf standard, but must have a wall or gable in our northern ones. Fruit large, greenish, and keeps well.

16. *Winter Nelis* (November to January). This we consider the finest flavoured melting pear in the kingdom. Properly ripened, it is excelled by none, and equalled by few. It would answer well in our southern counties on the quince as a dwarf standard, provided a snug situation was selected for it. In the north, however, it must have a wall. This is too tender and too small for the cottager; but no amateur should be without one. Fruit smallish round, and of a pale green; leaves of the tree peculiarly small and taper.

17. *Knight's Monarch* (January). A good hardy pear, and very productive. Fruit middle-sized, flat-tish round, of a yellowish brown, and of a somewhat musky flavour. Would answer well as a dwarf standard in most parts, provided it were on a quince stock.

18. *Easter Beurré* (January to March). Much esteemed as a late pear, although it has disappointed many. This is understood to be owing to its being put on walls possessing aspects too good for this hardy kind. It should be grown on dwarf standards in our southern counties, and in the northern it would, perhaps, be well to let it have a wall possessing a north-east or north-west aspect. Perhaps the quince-stock would reconcile it to a dwarf standard character in the north. Of middle size, round, and of a lively green.

19. *Burré Rance* (March to June). This is the best late pear in the country, at least for the amateur. Much, however, depends on the aspect and stock. We should think the quince would be most suitable, and it would succeed with similar aspect and treatment as the *Easter Burré*. Fruit long, above middle size, of a dark green colour.

20. *Ne plus Meuris* (March and April). An ugly-looking fruit, but nevertheless a useful late pear. This deserves a west or east aspect, and should be tried on the quince. Fruit below middle size, nearly round, with clumsy angular protuberances; colour greenish brown.

We have now described twenty of the best pears in the country; and it only remains to throw them into groups, bearing reference to their cultivation.

This we shall readily do, by reference to the numbers placed at their head.

Pears adapted for the southern orchard—Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14.

For the northern orchard—Nos. 1, 2, 3, 4, 5, 8, 14.

For east or west wall in the north, or for dwarf standards in the south—Nos. 2, 3, 10, 11, 12, 13, 15, 16, 17, 19, 20.

Pears peculiarly the cottager's, as being particularly profitable—Nos. 2, 3, 4, 7, 9, 12, 14, 17.

We feel assured that the foregoing analysis of the Table previously given will be found in the main correct; and it will present a ready means of making a selection. We have so trespassed on ordinary calendarial business with the pear subject, that we must defer such remarks until our next.

R. ERRINGTON.

THE FLOWER-GARDEN.

GENERAL DIRECTIONS: SHELTERS.—Stern winter has set in in good earnest, and it behoves the cultivator to keep a constant look out. The evenings are often ushered in by a clear sky, and if the wind inclines to any point of the north, frost is almost sure to take place. Every thing that requires protection ought now, without fail, to be in their winter quarters; and every night cradles, (beds bent over with hoops,) frames, and pits should be covered with mats. In our changeable climate it is scarcely ever safe to remit those precautions. It may even be a wet evening, clear up at midnight and be a sharp frost, to the great surprise of the neglectful in the morning. By way of being safe, it is far better, then, to cover all up every night.

ORDER AND NEATNESS.—All dead flowers should be cut down and the tops removed to the rubbish-heap. Dahlias should be taken up and secured from frost in the manner recommended in a previous Number. The leaves of deciduous trees and shrubs will now be nearly all fallen from them, and must be collected into some convenient place, to decay and form leaf-mould. The borders should have a dressing of manure, or compost of loam, dung, and leaf-mould; spread this evenly all over the borders, digging it in, and leaving the surface quite rough. As the digging advances, if there should be any shrubs or flower-roots that require protection, let it be applied as you go on, so as not to have to go on the borders after they are dug.

AMATEUR'S FLOWER-GARDEN.—So long as the weather continues open, that is, without snow, there is always something that requires attention. All newly-planted shrubs should have their roots protected from frost, as far as they extend, by a covering of spent tanners' bark, short litter, or coal-ashes. If you keep the frost from reaching the roots they will continue to grow, and for this reason to draw up sap to enable the plant to push forth strongly in the spring. That they do put out new roots in the autumn may be easily proved by taking one up after it has been planted a month. The young white roots may then be seen pushing in all directions; and if the shrub is immediately replanted there will be no harm done.

STAKING.—Every tree or shrub that requires stakes need them most during the boisterous months of autumn and winter. Examine all such as have been staked for some time, and if the stakes are found decayed, which generally is the case just on the surface

of the earth, let all such be taken away and new ones put in their places. Such as are sound should have the ties renewed. The best stakes are those made of young larch-trees; they last the longest. The bark should be removed, and the stake made smooth. The part to be driven into the earth should be sharpened to a point with a sharp instrument; and then, to preserve it as long as possible, let it be dipped into some hot tar and pitch. After it has become cool and dry, drive it in with a wooden mallet as close to the shrub as possible, taking care not to injure the roots. Place a shred of any kind of cloth round the stem, to prevent the string from cutting it, which it would be apt to do as the tree swells in growing. The best material to tie with is rope-yarn, or twine that has been tarred, such as is used in thatching hay or corn-stacks.

FENCES.—As every garden requires a fence from cattle or depredators, or as a division from a neighbouring garden, it is not out of place to make a few remarks on this kind of enclosure. There are several kinds of fences, but they may be divided into two—protective and ornamental. The protective, again, may be of two kinds, a wall or a hedge.

WALLS.—The most simple, lasting, and effectual, is the wall; and it may be either of brick or stone. In some localities stone is plentiful and cheaper than brick. A stone wall should always be built with lime, and have the front next the garden especially made smooth. In some cases the inside is built with brick and the outside with stone. If the wall is not used for fruit-trees, it may be covered with creepers, of which climbing roses are the most ornamental during summer, and the Irish ivy in winter. One shrub, however, must not be forgotten,—we mean the *Pyra-cantha*, or evergreen thorn. Though it has not such beautiful foliage as the ivy, it produces large bunches of bright scarlet berries, which are very ornamental during winter. Whichever kinds are used to cover the wall, they ought to be kept quite close to it by pruning and nailing. The gardens of villa-residences near large towns have the boundary next the general road formed with a substantial wall, and the division fences made with a low wall and an iron trellis or railing upon it. This trellis would be very useful, and be much more ornamental to train creepers upon. The honeysuckle, the clematis, climbing-rose, and Irish ivy, would be much more pleasant to the eye and gratifying to the sense than a naked trellis. Each

proprietor of course will plant only one fence of this kind; and to cause it to have a neat appearance the creepers should be kept neatly and closely tied in, so as not to interfere with or shade the flower-borders on each side.

HEDGES.—The other protective fence is the hedge, which may be described as a row of thorny shrubs, set so thick and allowed to grow so high as to prevent cattle or trespassers from creeping through it or getting over it. This kind of fence is more general in the country than near large towns. There are two kinds of shrubs used for this purpose in this country, the common thorn and the holly. The thorn makes a strong effectual fence, if well managed. In the first place, the ground where it is to be planted should be properly prepared. If the situation be low and swampy, dig it one spit deep, and, as the digging proceeds, form a ditch at the outside, one foot wide and as much deep, sloping it downwards to the bottom of the ditch. Form the slope with some of the turf; the soil out of the ditch will raise that where the hedge is to be planted. Break the soil well with the spade, keeping the turf, if any, at the bottom of the trench, and leave the surface smooth and even. As soon as the digging is finished, the thorns may be planted. Stretch a garden-line one foot from the ditch, and with the spade chop down the soil so as to form an upright bank, and deep enough to cover the roots; it is then ready to receive the thorns. Some persons plant two rows to form the hedge, this we judge to be a useless waste of plants: one row, with the plants four inches apart, will grow better, and consequently sooner be a fence than two rows. The thorns will grow faster if a portion of rotten dung be added to the soil at the time of planting. It will also be advantageous to protect the roots the first season with some short litter. In high dry situations the ditch may be dispensed with; indeed it is then not only of no use, but injurious, as it takes away the moisture from the roots; and the expense and labour of forming the ditch and bank is thrown away. Whoever observes the stunted miserable fences that divide our upland pastures in most places, will easily conceive the cause to be the injudicious mode in which the hedges have been planted and managed. Should you propose to the farmer a mode of growing wheat, or any other plant, on banks two feet high, he would laugh at the absurdity of your plan, and yet with his hedges he follows that method which in any other case he would justly ridicule. If a correct calculation were to be made of the waste of earth, of space, and labour the hedges of Great Britain cause, it would surely bring about a reform in the planting and management of our hedges.

The next protective fence is one that we strongly commend. It has two qualities to recommend it that the thorn does not possess,—it is an evergreen, and is much warmer. We mean our beautiful holly. The only disadvantage that can be urged against it is the slowness of its growth. This, however, may be partly overcome if the same pains are taken as with the other. For a garden fence, a fine holly hedge is invaluable, adorned as it is, when in perfection, with its bright shining leaves and scarlet berries. The same pains and method as described for the thorns, should be bestowed upon it. Both are best planted when young. Thorns should be three years old, and hollies four. All the soil may be shaken off thorns when taken up out of the nursery rows; but it should be carefully retained to the roots of the hollies. The latter should be planted immediately, and the roots as little exposed to the sun and wind as possible. The best season to plant the holly,

is early in October; the thorn, too, will do best if planted before Christmas. All these pains may be taken, and yet, if proper care is not taken of the fence afterwards, the fence will make but slow progress. By a temporary fence of posts and rails, cattle should be kept from browsing on it. No weeds should be allowed to grow among the plants, as they will not only choke them, but will rob them of the nourishment they would have if the weeds were kept down. Besides, by frequently hoeing, the surface is in a good state to be benefited by rains and snows. Hedges should be clipped with the dubbing-shears lightly, even the first season; taking off all the straggling shoots, and so laying, as it were, the foundation for its proper form. That form should be pyramidal, or that of the letter A. When in that form, every part of it is equally exposed to the benefit of light, air, and rain: whereas, if the upright perpendicular method is adopted, the lower branches will perish, and the fence become naked at the lower part of it.

We will give directions relative to ornamental fences in a future Number.

COTTAGE FLOWER-GARDEN. The weather last week having been very suitable for out-door operations, we trust our cottage friends have made good use of it. The turf-pit and arched walk, mentioned in the late Numbers, are, we hope, progressing. No time must be lost now, as the days are approaching towards the shortest. Do not forget, amidst all your works, to collect the fallen leaves, wherever you can honestly obtain them. It is a very pleasant employment for the cottager's children, and an exercise they will delight in, with their wheelbarrow and rake. The leaves should be put in a corner of the garden, and wetted with the slops from the cottage, and should be turned over frequently, to assist the progress of rotting. They will be excellent manure, either for the flower-garden, or vegetable crops.

FLORISTS' FLOWERS.

TULIPS.—If not already all planted, no time ought to be lost now, as the late fine weather has put the bed into fine order. The bed ought to have hoops stretched over it, so that it can be covered with mats during very heavy rains, or extreme frost.

ANEMONIES.—The single ones may now be planted either in beds, or patches, in the general flower-border. Fine double ones had better be kept in the bags, till February or March.

PANSY.—Agreeable to promise, we now resume the culture of this interesting flower. In No. 5, we gave pretty full instructions how to propagate it:

SOIL.—Pansies love a light, rich soil. Loam three parts, and leaf-mould one part, will grow them finely. If the loam be strong, add one-eighth of river sand. Should the situation be damp, the bed ought to be drained. To produce high bright colours, the bed ought to be in an open situation. The bed should be got ready now, and be turned over two or three times during the winter.

POTTED PANSIES.—The best kinds should be kept in pots, under protection, through the severe weather. Keep them rather dry and clean from weeds, pick off all decaying leaves as they occur, or they will cause the plants to damp off. Air must be given freely in fine weather, which will keep the plants healthy. When they become dry, water the soil, but do not let any water fall upon the leaves. The pots should stand upon dry coal-ashes; and once or twice remove all the pots, and look out for snails, and other destructive

vermin. At the same time sprinkle another slight covering of dry ashes; they will absorb the damp. If all those precautions and pains are taken, you will carry the plants healthily and safely through the winter. Early in the spring, level your bed down, and proceed to plant. The space between the rows should be nine

inches, and the same between the plants in the row. Let the earth be pressed with the hand closely to each plant. They then want no further care excepting keeping clear of weeds, and the soil stirred on the surface occasionally, especially after heavy rains.

T. APPELVY.

WINDOW AND GREENHOUSE-GARDENING.

NIGHT WARMTH.—In olden times, those who could afford to have a greenhouse or pit to keep their plants in through the winter, were never satisfied unless they could have them in a green fresh state all the year round. I recollect very well, when I was a little fellow, that I had often to sit up till past eleven o'clock, on frosty nights, keeping on a roaring fire to the greenhouse. My instructions were to finish up at night by filling the fireplace with dusty small coals, and over them a thick layer of ashes, and pat the whole down for the night, and to be sure to be up early in the morning to poke and stir up the remains of this fire. By way of insuring all this to be done faithfully,—if the fire went out during the night, I had to make up a fresh one before the sun was up, by way of punishment. I took pretty good care, you may be sure, to avoid this drudgery, as much as I could. The plants next the flues could never go one day without a good watering in frosty weather; and we thought this was very much in their favour. Of late years, however, all this has changed: the stimulus given to gardening by the great exhibitions and the diffusion of sound principles through the press, have changed all—or almost all—our old notions: so much so, indeed, that cottagers' windows along the roadsides exhibit better specimens of plant-growing nowadays, than we used to have with all the fires and greenhouses at our command. It is now clearly ascertained that plants, like ourselves, require rest at night all the year round, and also a *season* of repose, like our apple-trees. When our hardy trees cast their leaves in the autumn, they take their rest till the return of spring, when their buds—now swelling fast—tell that they are again at work; but their labour is not incessant, for every cold night—and every night is colder than the days—they go to rest more or less. It appears, therefore, that cold is necessary to allow plants to have their own natural way of living, and that to keep them too warm at night, or during the winter, is acting contrary to nature, and, therefore, must be injurious to them. No wonder then that plants treated on the roaring fire system—as above—should get gawky and long-legged, but unhealthy and of short duration. The cottager who puts out his fire before he goes to bed, and for fear of frost places his window plants down in the middle of the room, is acting more rationally than his lordship's gardener who keeps his men trotting "after the fires" the best part of the night. The cooler greenhouse plants are kept during the winter the less water they require, and the less attendance in every respect: they will also grow with much greater vigour when they begin in the spring. In frosty and stormy weather the greenhouse fire should be lighted early in the afternoon, and, no matter how cold the day may be, some air ought to be given, if only for an hour or two, after the fire is lit. The flue then gets warmed throughout before night, and the fire may be damped down with small coal and cinder ashes, a little damped previously; this will keep a smouldering fire for a long time; if

the night is very frosty and the thermometer stands below forty degrees, the fire may be stirred up about eight o'clock.

MANAGEMENT OF FIRES.—Here I must digress a little, to say there is not one in five hundred who knows how to manage a coal fire properly—not even if he buys the coals himself. I have been on steam-boats of all sorts and sizes, both in England and Scotland, and I have travelled on most of our great lines of railroads; I have also seen fires made in large founderies, and I can safely say that I never saw a stoker in any of these places manage a fire properly. If a gardener who has had much to do with fires were made a railway king, he could save thousands of pounds yearly in the coal bills alone. The way fires are mismanaged is this: when the coals are about half burnt, or rather so far coked as to burn clear with little or no smoke, a great fellow comes with a long black poker, and stirs them up—clearing away the ashes and small cinders from among the fire bars. The fire then burns quite clear, and is *perfect*, and if left to itself in that state for a time, would be sufficiently strong for any purpose. But no; we are never satisfied with things as they should be. No sooner has the poker done its work but the coal-shovel must begin to undo it, by heaping on a fresh layer of coals all over the burning mass, and a black volume of smoke immediately destroys the efficiency of the clear fire. By the time this second feed of coals begins to burn clear—the state in which it is most powerful—the poker and shovel go the same unvaried round; and it is no exaggeration to say, that one half of the coals used in this way are mere waste and useless smoke.

The way intelligent gardeners manage their hot-house fires is this: when the first feed of coals becomes a clear burning mass, no more fresh coals are thrown over it till the fires are made up for the night—their constant aim being to keep the body of the fire as clear as can possibly be done. When a fresh supply is necessary, the fire is stirred, and the unconsumed coals—now at a red heat—are pushed towards the farther end of the furnace, and the fresh feed is placed in front, next to the fire-place door. The quantity of smoke from this fresh fuel is nothing in comparison to that caused by throwing it over the surface of a hot fire, and a great part of it is consumed in passing over the part ignited. The cold fuel next the door is thus coked, or carbonized, and when pushed forward in its turn, burns clear, and gives out a powerful heat: besides, the coldest part of the fire being always next the furnace door, prevents this door from warping, and the rush of cold air through the crevices of the iron-work is also lessened. The air necessary for blowing a brisk fire should always be admitted by the ash-pit, and up through the bars, in order to get heated before it reaches the flame. This is the most effectual way of managing fires for flues or boilers; and yet how often do you see directly the reverse—that is, to draw out the burning mass to the front of the fire-place, and apply the fresh coal beyond? Small cin-

ders, in equal quantities with coal, make a steady fire than either alone. When the fire is made up for the night the coal and cinders should be damped a little, and some of the dust ashes thrown over the whole, which should then be patted down with the back of the fire-shovel; and, if a damper is used, this reservoir of heat ought to last many hours. Every flue, or chimney, for plant-houses, ought to have a damper near the farthest end from the fire to regulate the draught when necessary, and to prevent a current of cold air passing through the flue after the fire is made up for the night. I have occupied more space on the subject of flues than many readers may think necessary at the present time, when they are nearly superseded all over the country by hot water-pipes; but I am persuaded that with our improved knowledge of cultivation, plants can be as well grown with smoke flues as with hot water, and with half the expense in the long run. The advantages attending the use of hot water-pipes in small green-houses—such as this article is intended for—are more than overbalanced in the loss of heat driven up the chimney and lost. Formerly gardeners were not sufficiently alive to the importance of supplying the atmosphere of their plant-houses with moisture in proportion to the necessary degree of heat: hence the outcry against smoke-flues. On the other hand, a hot water apparatus is far preferable when one can go to the expense; but thousands who could indulge the luxury of a small green-house are prevented by the necessary expense of a hot water apparatus, and also from an idea that plants cannot be managed well with smoke flues. One strong objection urged against flues is that a house can never be kept to a uniform temperature by them, as with hot water-pipes;—the end next the fire-place must be so much hotter than the other end. This assertion is quite true; but instead of that being a disadvantage or objectionable, it is precisely the reverse, as it will enable you to grow a greater variety of plants in one house than could be done were all parts of the house of equal temperature, which may be illustrated thus: geraniums require more warmth than fuchsias, therefore geraniums must stand in the hottest end of the house: fuchsias, again, must have more heat than heaths, and should take their place between the geraniums and heaths, and so on. Where heaths are grown in one house, fuchsias in another, and geraniums in a third, it is of the greatest advantage to have each house of uniform temperature throughout, and nothing can do that like hot water-pipes; but I am not writing for such places.

The less fire heat is used for a green-house, consistently with the safety of the plants, the more healthy they will be, although, for the time, they may not appear so to the eye; therefore, to protect it with mats, wooden shutters, or asphalt covers, is not only a great saving of coals, but of some importance to the plants also. There will be little watering to do in a green-house for a long time, but the plants should all be looked over occasionally to see what they may want.

CAMELIAS.—These are beautiful green-house plants, of the more hardy sort, which, if rightly managed, will flower every spring and look well at all times. At present you may see their flower buds growing in little knots at the end of the branches, sometimes growing close together, like clusters of nuts or filberts, and every one of them would produce a flower if left

to themselves; but that would burden the plant too much, and probably keep it from flowering next season, or break down its constitution altogether, and be a cripple or sickly thing for years to come: besides, the individual flowers would not be nearly so fine and large if the whole of the buds were allowed to open. Gardeners always thin out the flower buds of this beautiful plant, as soon as they can distinguish them from the other buds. If not done already, this is a good time to rub or cut off those buds, where they are crowded. Two are the most that should be left at one place, and where the branches or shoots are small one flower bud is quite enough for it to bring to perfection. This work is called disbudding; of which you will hear a good deal by-and-by. Although camellias are not growing at present, and appear to be quite at rest, they have a heavy task to perform in nursing their own flower buds; therefore they require good feeding, by being regularly watered, and about every ten days by a dose of some liquid manure, of which the safest stimulant at this season is soapsuds. I hardly know a plant that will refuse—or, rather, that is not benefited by being watered occasionally with soapsuds; and if in a warm state, so much the better for the camellias.

CHRYSANTHEMUMS AND THE EARLIEST CINERARIAS are the only other plants that occur to me now as requiring the assistance of slight liquid manures, that is in the green-house. It is different with window plants in warm rooms. You may safely allow them a little more feeding at all times, as they are under greater disadvantages than those in the green-house. A mixture of one-half rain-water, and the other half of soapsuds, may be given them alternately, with clear rain or soft water. Ice-cold water, and all hard spring-water, fresh from the pump, is very injurious to all plants; and some kinds of plants never prosper, if constantly watered with hard water. For green-house plants in general, I do not put so much stress on, having the water for them luke-warm; if the chill is taken off, it is enough; and that can easily be done by keeping a water-pot or two always full on the flue, or near the fire-place: if this gets too hot when the fire is at work, it is easily cooled by adding more cold water to it.

It is now time to put by such window-plants as are kept quite dry over the winter, such as fuchsias, scarlet geraniums, cactus, etc. The branches of the fuchsias may be cut to within a foot of the pot: the remaining leaves on the scarlet geraniums had better be taken off also. In short, any plant put to complete rest, should have the leaves and small twigs first stripped off, as they can be of no use, and may do some harm by damping, and so bring destruction to the plants. Any place where the frost cannot get at, will do to winter such things. Damp is more destructive for them than frost, and they will do for months with little or no light. Indeed, some people keep their dry plants in the cellar; but that is a dangerous place for them: unless the cellar is *perfectly dry*, you may as well throw them in the fire at once. A dry lumber-room at the top of the house, is much better than a cellar; and plants may be put into a box or basket, covered over with some thick warm covering while hard frost prevails, and in mild weather open them to the air; look at them occasionally wherever they are.

D. BEATON.

THE KITCHEN-GARDEN.

BEANS.—A small crop of these may be planted on a south border. The Mazagans are usually employed for this crop, but we prefer the Dwarf Fan. They come into bearing nearly, or quite, as early, and are not so liable to be blown down by the spring equinoctial gales. Cover the surface of the earth over the rows with coal-ashes to the depth of an inch, for this brings the plants up quicker, protects their roots, and saves the seed from being attacked by mice.

CABBAGES, plant out for seed. Three of the finest cabbages of any one sort that have had good hearts, and have not been cut for use, are quite sufficient for producing seed enough for one family. Plant them in a row, so that in the spring their seed-stems may be easily supported between four stakes and cross rods. Do not grow more than one kind for seed at the same time, otherwise the bees, in flying from flower to flower, will cross-impregnate them, and none will come "true." Do not let each cabbage ripen more than three stems bearing seed-pods, but cut all others away. When planting the cabbages for producing seed remove the large outer leaves, and dig the hole for each so deep that it can be buried quite down to the head. Do not plant them nearer than three feet from each other.

EARTHING-UP attend to, for all crops, such as cabbages, savoys, and brocoli. The oftener the soil is stirred between them the better. We find this season, in consequence of the extreme wetness of the summer and autumn, that the crops of winter-standing brocoli are very soft in texture and long-shanked. These are bad qualities for them to have, with the prospect of a severe winter; for if this occurs, and they are not protected, or aided in some way, they will all be destroyed by being frost-bitten in the neck. To prevent this, we have taken up, with as little disturbance as possible to their roots, all our long-shanked friends, and digging holes of the depth of their shanks, have replanted them in the same places, quite down to their leaves, and earthed them up still higher.

CUCUMBERS.—Attend to keeping up the heat by linings of fresh dung if necessary, as directed in our Sixth Number. A very important operation for obtaining early fruit, is the first pruning of the plants, or, as it is termed, *stopping* them: that is, nipping off the top of the first advancing stem. This makes it throw out side shoots, which become the fruit-bearing branches.

In November and December, while the influence of the sun is little, and the excitability of the plants feeble, the attempt to stop them should not be made, unless their strength gives good proof that other shoots will be emitted. But plants in a young state, in spring, should be stopped at the first joint. Their being fruitful or otherwise in the early part of their life, will depend in a great measure upon a proper performance of this operation. Plants intended for trellis culture should not be stopped until they have attained to a proper height, the distance from the soil of the bed to the trellis being necessary. The end bud, and every one below the three top ones, should be removed; and the shoots from these will become the skeleton of the future system of branches. Every useless or not required bud should be rubbed off im-

mediately it is produced, and every shoot unnecessary removed with the fingers, the knife being required only in removing a worn-out branch in a later stage of growth, and to cut the fruit. The shoots with fruit should be stopped at the second joint beyond the fruit, as soon as it is out of bloom. The shoot emitted at the fruit, and the one before it, must be rubbed away; and should there be one behind it, that should be stopped, not removed; but the shoots at the end bud, and others on other parts of the plants, must be encouraged to proceed unstopped, to succeed in a similar way, proportioning their number and the number of fruit to the strength of the plants.

When the plants begin to run, if a trellis is not used, the shoots must be trained and pegged down at regular distances, which not only prevents their rubbing against the glass, but also becoming entangled with each other. Never more than two or three main branches should be left to each plant, all others to be removed as they appear. If more are left it causes the whole to be weak, and entirely prevents the due exposure of the leaves to the sun.

For attaining this last-named object, as well as to obtain fruit unstained and of a uniform colour, it is by far the best mode of training to have the branches supported on a wire trellis at a regulated and equal distance from the glass.

To promote the admission of light in fine days in winter, when it is calm, it is very beneficial to clean the inside of the frame by washing and wiping, using a little warm water and a sponge, and once a fortnight, or as often as required, the lights too; these must be removed to a distance, and well syringed and washed with a soft brush; and before they are put on again allowed to dry. While this is being done, some other lights must be put on in their stead; but preferably to this, if it be convenient, is to use two sets of lights, one to be at rest and the other in use alternately every fortnight or three weeks.

The training must be regularly attended to, and all needless shoots and leaves removed. If the plants which have been once stopped have extended their runners to three joints without showing fruit, they must be again stopped. As the fruit advances, if not trained on a trellis, tiles, sand, or other material must be placed beneath it to preserve it from specking, or a glass cylinder is still better; if a bulb containing water is attached, the fruit grows faster and finer.

The greatest care is necessary in regulating the temperature; it must never be allowed to decline below 70 degrees, or to rise above 95 degrees. The temperature of the bed, as well as of the exterior air, governs also the degree of freedom with which the air may be admitted; whenever allowable, the glasses should be raised. The best time for doing so, is from ten to three o'clock.

It may not be misplaced to remark, that chilly, foggy days are even less propitious for admitting air than severe frosty ones; during such it is best to keep the frames close, and to lessen the opening of the glasses, in proportion as the air is cold or the beds declining in heat, it never exceeding two inches under the most favourable circumstances.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

[No. 6.]

THE auricula and polyanthus are beautiful border-flowers. They are too often considered so much as florists' flowers, and as not worth growing, except in perfection; but this should not prevent our encouraging them as much as we can, because even inferior plants are lovely, and a very little care will improve them, and make their flowers rich and abundant. I scarcely know any flower more beautiful than the auricula, with its downy, velvet-like blossoms; and, when growing in clusters, it is a great ornament to the garden. They like a good soil—leaf-mould, mixed with sand, suits them. I do not mention the composts generally used, because ladies can seldom procure them—and if they can, every work on gardening will direct them much better than I can do. Auriculas must be placed deep in the soil, but it should not be *pressed* round them. In some old-fashioned gardens we see large tufts of these plants, with their deep purple, maroon, and yellow clusters, blooming exuberantly; and although a practical eye might condemn them, they afford infinite pleasure to those who love flowers for themselves, and whose enjoyment has not been ruined by over-much knowledge. Too refined a taste in flowers is sometimes almost a misfortune—it cuts off many sources of real pleasure, and prevents our doing anything when we cannot effect all. I have experienced this myself with regard to the polyanthus. I was taught to distinguish the qualities of a perfect flower: and although I never arrived at any eminence as a judge, I lost my pleasure as an admirer. I have endeavoured to forget—but it will not do; my eye most perversely remembers; and as I seldom meet with a tolerable specimen, I endure continual disappointment. The polyanthus should not be allowed to remain long without parting the roots, or the flowers become very poor, and are disfigured by leaves which choke the blossoms; the plants should be divided, and replaced in good fresh soil. Plant them very deep in the ground, quite up to the leaves, as roots will form high up the stems. Cut off all the stumpy, carrot-like roots from the old plant, and leave only those which have plenty of fibres. Choice plants are often tied up like lettuces when the flowering-season is over, to prevent the wet settling among their leaves and injuring them.

Lilies-of-the-valley should be far more extensively cultivated than they are in every garden. Their fragrance is so exquisite, yet so delicate, that they are delightful even in a sitting-room; and the air never seems oppressive that is laden with their perfume. Cottagers do not seem to care for these very charming flowers; I never remember seeing them in any of their gardens, but they should ever be encouraged, from the splendid parterres of royalty to the peasant's humble though smiling border. They possess a peculiar interest, also, in the eyes of the Christian, as being used in Scripture to describe the grace and beauty of the church; and a glorious promise to Israel was made also under the figure of another variety of the same fragrant plant: "He shall grow as the lily." Let us, while enjoying the treasures of

our gardens, ever extend our thoughts to higher and holier things; for not a tree, or plant, or flower, or stone, or tuft of grass by the wayside, but leads our thoughts to God!

The lily-of-the-valley grows freely in the shade, but it loves the sun, and gives forth its richest odours under his full influence. How good would it be for us to listen to the lilies of the garden as well as to those "of the field," and like them pour forth the incense of prayer and praise for the full radiance of the "Sun of Righteousness!" Cottagers might cultivate this flower with profit; a few bunches, neatly tied up, would decorate the basket of eggs, or vegetables, and catch the attention of many who perhaps seldom enjoy such sweetness. Few flowers grow so prettily as these. The little column of snowy bells stands folded so closely, yet so becomingly in its rich green mantle, that it seems almost cruel to disturb it—yet its fragrance is irresistible. I recommend every lady and every cottager to encourage its growth, and to place it everywhere—in shade and sunshine, under shrubs, and in beds and borders.

There is a splendid flower, too generally considered as only belonging to the green-house,—I mean the camelia japonica. Many pet and preserve them through the winter in sitting-rooms, but with much care and difficulty; but the advantage would be great if they could be hardened into shrubs, and this may be done *in time*. Place round the plants wooden cases, according to their size, and on the top of each fix a hand-glass, through which may be admitted light, air, and water. Leaf-mould, or tanners' bark, six or seven inches in depth, should be laid within each case. This plan must be pursued for *four* winters; during the next four winters, hoops supporting mats will be a sufficient protection; after which they may be left uncovered with safety,—for seasons that have killed laurels, have never injured camelias thus hardened to the open air. The experiment is worth trying by any one who doubts the fact—for the plant would form a noble addition to the lawn and shrubbery. The pure white blossoms of this plant—the deep crimson, and the white and red—glow brightly among their dark polished leaves, and would make our gardens very gay; they are beautiful ornaments for the hair, and, being scentless, are well suited for the flower-vase.

Our winter's last preparations must be made now with speed—the frosts and snows are at hand, and then we must cease from our labours. All nature is about to sleep, while the mighty hand of God is silently working beneath the dreary, frozen surface, performing the wondrous operations that are so soon again to send forth "food and gladness" to fill our hearts. Eye cannot discern these deep, mysterious works, nor can we hear the Voice that bids the sap awake and flow into the topmost bough; yet we mark the swelling bud and the shooting blade, and we know that the mighty engines of God's power are in full activity—that He neither slumbereth nor sleepeth—and that soon the earth shall again "bring forth her increase," "the field shall be joyful, and all that is therein," and "the trees of the wood shall rejoice."

HARDY AND GREEN-HOUSE PLANTS, LATELY INTRODUCED AND WORTH CULTIVATING.

SLENDER-SPURREO COLUMBINE (*Aquilegia leptoceras*).—This flower was found by Mr. Burke, in 1845, in the regions of the Rocky Mountains of North America. It is perfectly hardy, and its white flowers, slightly tinged with yellow and pink, are beautiful when grown in large groups or masses. Mr. Burke thus describes its first appearance to him:—"I found, near Medicine River, a most beautiful columbine, which I have never seen elsewhere,* growing at the foot of a hill, in rich loamy soil: the flowers very large, beautifully white, variously tinged above with light blue. In my opinion, it is not only the queen of columbines, but the most beautiful of all herbaceous plants."—(*Bot. Mag.* tab. 4407). It is easily propagated by seed as well as by division of the roots, a rich well-drained soil will best suit it.

ECHLIUM-LIKE ARNEBIA (*Arnebia echisides*). This hardy herbaceous flower is a native of Armenia, and the Caucasian Alps. It has yellow flowers, marked with five purple spots. The flowers grow in trusses, like the cowslip and polyanthus. It is very pretty, and blooms in June and July.—(*Bot. Mag.*, tab. 4409). It is easily raised from seed, and probably by division of the root. Like its relatives, it will probably thrive best in a rich light soil, free from the shade of other plants.

HAIRY BURTONIA (*Burtonia villosa*). This native of the country near Swan River, in Australia, has much the appearance of our common Rest Harrow, but is much larger and handsomer. Its flowers are lilac, with a yellow throat. It requires the shelter of a green-house; and bloomed during May, at Messrs. Lucombe, Pince and Co.'s nursery, Exeter.—(*Bot. Mag.*, tab. 4410).

The pots in which it is grown must be well drained, and the soil a mixture of equal parts, peat and sandy loam. Nothing is so injurious to this genus of plants, as too much water about their roots. It is raised from seeds, and from cuttings of the young shoots planted in sand under a bell-glass.

DEEPEN THE SOIL.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

THERE is perhaps no mode of rendering the soil of a garden more certainly productive, than by deepening it. This is an improvement which few persons are so poor as not to have it in their power to adopt. It very commonly needs only a good heart, and a stout arm, to make in this way the cultivation of the most stubborn soils more profitable. I do not confine my remarks to any particular description of land. The sands of Surrey, by merely deepening them, are in this way made to produce the best crops of potatoes. I have witnessed this not only in the gardens inclosed from the wild heaths of Bagshot, and around Woking, but in the deep strata of sands at Addington. In that parish deep pits are excavated to get at the fine white or silver sand, so well known to the housewives of London. To accomplish this, it is necessary to dig through two or three layers of different kinds of sand. These, when the silver sand is taken out, are thrown back into the pit, and it is these merely thus deeply-stirred sands which produce the excellent crops of potatoes to which I have referred.

* Mr. James had previously discovered it in the neighbourhood of the same mountains.

On the chalk soils of Sussex and North Hampshire the same excellent results of deeply stirring the soil are apparent: and this is a result which we might perhaps have had reasonable doubts of being attained; for the surface soil is already abounding with chalk and rests immediately upon a subsoil almost entirely composed of the same substance. Here, however, deeper digging or forking has been found very beneficial. The benefit may be thus explained:—Loosening the subsoil not only affords a larger space for the roots of the plants to extend in search of moisture and air, but it often gives them access to certain mineral substances, (such as bone-earth,) of which, by long-continued cropping, the surface soil is exhausted. This bone-earth, (the phosphate of lime of the chemists,) is an essential part of almost all plants: it is the portion of vegetable food which supplies the enlarging bones of all growing animals; so that as this is constantly carried away in some form or other from all gardens, it is only by keeping up the supply in either manure, or in enlarging the soil, that these grounds can be kept in a state of profitable production. The very heaviest clay soils are equally benefited by thus increasing their depth. It is here that the fork is so useful and so powerful: it is not only a tool worked with less labour than the spade, but it breaks the soil better. I of course regard the use of the fork only in conjunction with good and deep drainage. To attempt to deepen a soil where the land-water approaches within a few inches of the surface, is useless. The first operation is to get rid of the water, and then to apply the fork at the *bottom* of the first trench; and to attain the most certain advantage, the plan I have ever seen to answer best is to keep this substratum at first from the surface, by merely turning it over in the trench, that is, by merely deeply loosening it, without at first mixing it with the surface-soil. A little time soon enables the gases of the atmosphere to render this soil a suitable pasture for the roots of the plants; and these roots are sure to very readily find their way down into it. The death and decay of these roots still farther improves this under-soil; and in consequence, a still greater proportion of the roots of succeeding crops penetrate into, and find food in the formerly inert soil. These operations steadily continue, until after the lapse of a year or two the upper and under soils may be trenched and mixed together with advantage, to a depth of two spits. We have here one instance, amongst many, of the advantages of merely applying extra manual labour to the soil, and the result is pretty general in its applications. I have given my experience on only three descriptions of soils,—the sands, the chalks, and the clays; but there are others who have borne their testimony to the marvellous effects of mere manual labour on soil, still more unlikely to be thus benefited than the three I have named. The deep peat-soils of half South Lincolnshire have thus been rendered valuable by merely raising a portion of their clay substratum to the surface. The late Mrs. Davis Gilbert, in the same way, formed a soil on the shingle beach of East Bourn. There is then, one may safely conclude, no soil so bad but it may be rendered more productive, if we have but the courage to encounter the labour required.

STORING GRAPES IN WINTER.

INSTEAD of tying the bunches by the stalk when hanging them up, take a piece of worsted, two feet long, tie the two ends in a knot, make a noose, and insert three or four of the berries of the point of the

bunch in it; do the same thing at the other end of the loop. Hang the two bunches on a nail or a rod—putting one of them higher than the other, that they may not come in contact.

The advantage of this method is obvious. When the bunch hangs in its natural position, the berries rest on each other, and if one decays, the contagion spreads so rapidly that the whole bunch is soon destroyed. Reverse the position of the bunch, and almost every berry is separated from the others, and disease is far less likely to spread than in the former case. The grapes should of course be kept in a cold dry room.

F. L. LAVANCHY, *Spring-hill, Southampton.*

SCARLET-RUNNER BEANS.

As you condescend to take the commonest hints with regard to out-door gardening, I will suggest one (if not before known) which I have given attention to for the last two years. It has often struck me how much trouble people take to obtain very long sticks for their scarlet-runners. Now I have used sticks not more than four feet high out of the ground, and by nipping off the extreme end of the bean when it gets to the height of the stick, I have invariably found the plants much more strong, early, and productive; besides, the fact that they do not take off the sun from nearly so much ground by their shadow. I am anxious, if possible, in my parish to promote a better style of garden cultivation.

I hope, in your columns, we shall be informed, amongst the valuable remarks on Manures, which manure must naturally suit best the different vegetables, and which are in particular cases unsuitable.

REV. EDWARD MANSFIELD, *Buerdean.*

[The above mode of sticking the runner kidney-beans is very good. We never use any sticks at all, however, but pinch off the stems of the beans as fast as they reach to a height of eighteen inches; the produce of beans is not so great as when the plants are allowed to twine up sticks, but the advantages of neatness and not overshadowing other crops, as stated by our correspondent, are more than a compensation.—ED. C. G.]

CHARRING.

In answer to a correspondent (S. of Manchester), I beg to state, to char turfy soil the best method is to cut it into sods of about a spade's width, and two or three inches thick, when the soil is not over-saturated with moisture. Indeed the easiest and cheapest method of charring sods of earth is to perform the charring process in the dry part of the season, as during the month of March or in the summer season, and if the sods are cut and packed into rows or ridges to dry partially previously to charring, so much the easier will it be performed. Not but that sods of earth or any other material may be charred at any season, no matter how wet they may be, but then they take more time and require more burnable matter to intermix with them. Burning any kind of material, and allowing it to be consumed, producing nothing but *smoke and ashes*, is a real waste of valuable property, which could be turned to valuable account for the culture of the soil. To char sods, or surface soil of any kind, commence by placing a small quantity of combustible stuff—such as dry weeds, hedge trimmings, furze, heath, shavings, brush-wood or bushes, or any kind of

dry vegetable refuse the place produces near at hand; then commence packing the sods, no matter how or what thickness, as any thickness may be charred by placing amongst them, as the heap or kiln is proceeded with, some one of the before-mentioned materials, or old tan or saw-dust, just to keep the materials ignited. It is no matter how large or small the kiln may be formed; for this may be regulated by the convenience of the material at hand, and the quantity of charred materials required—only when the kiln is formed it should be slightly covered or cased with fineish earth, to prevent the fire from flaring, and to maintain a steady smouldering, charring or *roasting*. Much smoke will escape for a time; and when the smoke begins to subside, it is a sign that the materials are charred enough. The fire should then be smothered out by caseing-up the outside of the kiln quite close with earth.

The above, I hope, will suffice for the present; but as I have been requested by several large landed proprietors to publish what I know in respect to charring and charcoal for the cultivation of the soil, I purpose collecting all that I have hitherto written upon the subject, and arranging it in a cheap form, to publish it with the results of my later experience upon the same important fertilizer.

The roots and refuse grass should not be separated from the earth for charring purposes, for they are an assistance for ignition, and a saving of the application of any of the other materials required for fuel. To char at the present wet season would require much more ignitable materials, and more time to char. It is of no consequence which side of the sod is placed downwards in forming the kiln, so that enough of combustible matters besides are placed to char it properly; *the outside layer of sods, forming the kiln, I place all the turfy side downwards.* No large quantity of fuel is required; if too much is employed, it is more likely to consume the sods away into mere smoke and ashes.

JAMES BARNES.

HINTS FROM OUR CONTEMPORARIES.

DRESSING STRAWBERRY-BEDS.—Mr. Morgan, gardener at Inverie, in Scotland, recommends the rows to be now hand-weeded; the runners, but none of the leaves, to be cut off, and the earth between the rows to be well stirred with a fork. Let no more be done until February, and then a covering, an inch and a half or two inches thick, of fresh cow-dung, be put on between the plants. Smooth the dung down with the back of the spade, and sprinkle over it a little earth, merely for the sake of neatness. This, Mr. Morgan says, will insure a good crop even in dry seasons.—*Gard. Chronicle.*

CELERY.—Mr. Errington says that where good quality rather than size is desired, and the chief aim is "to obtain it tender, crisp, and good-keeping," it must be sown later than usual; namely, early in April, for the main crop. "Sown in contact with a thin layer of very rotten manure, and, above all things, keep it constantly moist." The seed-bed need not be covered by a frame. Transplant the seedlings so soon as they are large enough to be handled. "Elevated beds should be had recourse to as a guarantee against battering storms, the young plants being extremely liable to 'choke' during heavy rains. These beds should be thoroughly pulverized, and after this process—being duly marked out—a coating of rotten manure should be spread over the surface, two inches in thickness, and a casing of the ordinary soil strewn over this, about an inch in thickness.

"The soil being neatly levelled, a light roller may be passed over the bed, in order to make a close and even surface; or in default of a roller, the soil may be patted with a spade; this precaution will prevent injury from storms. By a kindly attention the plants will be ready for final transplanting in about a month; and no delay must be permitted in this matter, as it is well known in these days that a sudden check after very rapid growth induces the formation of blossom, or, in technical terms, as applied to the celery, causes the plant to 'run.' The smaller the plant, therefore, at this removal the better, provided it is stout, and of a dark-green colour." When finally planted out, Mr. Errington prefers doing so on the surface of the ground, which is termed "the Scotch bed mode," rather than in trenches,—the old mode. In either way, abundance of manure, and in dry weather a plentiful supply of water are essential. Mr. Errington prefers earthing-up celery gradually, two or three inches at a time. In this part of his practice we venture to differ from him (see p. 15). Mr. E. recommends the Manchester red celery for the earliest crop, and Seymour's white for that required to keep longest.—(*Hort. Society's Journal*, iii. 298.)

THE FIRST CHERRY IN THE MAURITIUS.—The first cherry ever grown on this island appears to have given rise to some extraordinary proceedings. A tree had been introduced and tended with great care by a planter, who watched over it with trembling anxiety during the flowering season; all the fruit, however, failed, except one cherry, which gradually ripened and came to perfection. A festival was given in celebration of the event by the delighted planter, and the governor, Sir R. Farquhar, invited to gather the unique and interesting specimen. He arrived punctual at the hour, and at the head of the assembled company approached the tree. The cherry was gone!—a young negro, unable to resist the temptation of the rich and juicy fruit, had swallowed it. The governor appeased the planter's vexation with the good-humoured remark, that the will would suffice for the deed; and the company consoled themselves for the disappointment by adjourning to the breakfast-table.—*Chambers' Edinburgh Journal*.

SULPHATE OF AMMONIA.—Half an ounce of this salt to each gallon of water is recommended, after numerous trials, as an application to Geraniums, Fuchsias, Peas, Dahlias, and newly-potted greenhouse cuttings. It greatly promotes their vigour, but must not be applied oftener than once in ten days.—*Gardeners' Almanack*.

STAKING TREES.—In this season of planting, it may be useful to impress upon our readers the very great importance of firmly staking all newly-planted standards and half-standards. A tree now freshly planted, if undisturbed, will emit numerous little roots between this and March; but this will be checked, or entirely prevented, just in proportion to the disturbance of the root by the violent waving of the stem. The most effectual mode of steadying a tree, however large, is by three stakes, proportioned to its size, set firmly into the ground at equal distances from each other, round its stem, and pointing so acutely towards it as to cross it at about two-thirds the height between the surface of the soil and the branches. At the point of contact with the stem, secure each to it by a separate band of straw. Pass this first round the stem, bringing the two ends towards the stake, and tying it between this and the stem; then passing one end round the stake, tie this firmly to the stem.—*Gard. Journal*.

CROST IN BOILERS.—This is the month in which fires are usually lighted for daily use in the Greenhouse and Hot-house departments; and we may advantageously tell the gardener to add one ounce of sal ammoniac (muriate of ammonia) to every sixty gallons of water in each hot-water apparatus he employs. This will effectually prevent the incrustation or "furring" to which all boilers and pipes so used are liable. All water, except rain, snow, and distilled water, contains a considerable amount of carbonate of lime (chalk), held in solution by aid of the carbonic-acid gas contained by the water. Heating the water drives off the gas, and the carbonate of lime falls, or is precipitated, upon the sides of the vessel, forming gradually a hard earthy crust, materially interrupting, being a bad conductor of heat, the operation of the fire. This is prevented by adding the muriate of ammonia; for its muriatic acid combines with the lime of the carbonate, and the carbonic acid of this unites with the ammonia of the muriate, forming two salts always soluble in water. The efficacy of this plan has been proved by some years' experience on the South Western Railway—it being always employed in the boilers of their locomotive engines.—*Gard. Chron.*, 163. It has been suggested that muriatic acid would do better, because cheaper than muriate of ammonia; but this is not so, for it would be driven off from the water by heat, and, whilst in excess in the water, would corrode both the boiler and the pipes.

TO CORRESPONDENTS.

SCALE ON MYRTLES (*Vincetia-Grantham*).—To kill these insects, brush over them spirits of turpentine twice, allowing an interval of two days, and shutting up the plants in a close-covered garden-frame during the whole time. You would not have this pest at all, probably, if you kept the air of your greenhouse in the summer more moist and your plants more vigorous.

ERROR (p. 51, col. 2, line 8 from top), for "eighth" read "one-fourth."

BOTANY (*R. T. Newbury*). It is difficult to say which is "the cheapest and best work" on the elements of this science, but we can recommend Dr. Carpenter's "Vegetable Physiology and Botany," as very good and very cheap.

SILK-WORMS (*Clara*).—We have turned our attention to this subject. Your communication shall appear in our next.

ONE OF OUR SUBSCRIBERS has our thanks for his friendly criticism. His hint about the meteorological addition to our calendar shall be adopted at the close of our first volume. We must complete what we have begun, and hope each year to have something fresh and better. We will offer some remarks, as you suggest, about weather prognostics.

FEEDING BEES (*A young one, Stoke Damarel*).—The best compound for this purpose is, one pound of brown sugar, one quart of beer, and a dessert spoonful of salt boiled together for five minutes. Put it into a small shallow plate with two sticks across it and a sheet of paper laid upon them cut full of small holes, for the bees to pass their probosces through. The paper saves them from drowning. Lift up the hive and place the plate under it. There is no need for a slide to close the entrance of the hive. A piece of very thin sheet-lead, pierced with holes, may be pressed over the entrance, so as to adapt itself to the shape of the hive. The lead may be kept in its place by a small peg thrust through one of the holes and into the straw of the hive.

POTATO-PLANTING (*Ibid*).—You may do this now or in December during dry open weather. Plant ash-leaved kidneyes, Julys, or any other early sort except the walnut-leaved.

NIGHT-SOIL (*Ibid*).—You will see how to deodorize this in our last Number.

MANLY LETTERS have arrived too late to be answered until next week.

WEEKLY CALENDAR.

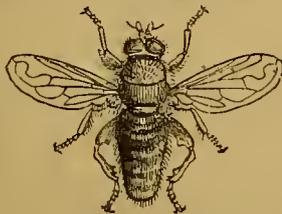
M D	W D	NOV. 30—DEC. 6, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
30	TH.	ST. ANDREW.	Three-color'd Wood Sorrel.	45 a 7	53 a 3	8 14	5	10 58	335
1	F	Trees everywhere leafless.	Dark-flower'd Stapelia.	47	52	9 a 18	6	10 36	336
2	S	Pipistrelle Bat last seen.	Lemon-color'd Deodorum.	48	52	10 25	7	10 13	337
3	SUN	ADVENT SUNDAY.	Tirusallian Spurge. (berry.	49	51	11 35	8	9 49	338
4	M	[cieties' Meetings	Prickly Barbadoes Goose.	51	51	morn.	9	9 24	339
5	TU	Linnean and Horticultural So-	Long-stalked Hybiscus.	52	50	0 48	10	8 59	340
6	W	Nicholas.	Nest-flowered Heath.	53	50	2 3	11	8 34	341

ST. ANDREW, the younger brother of St. Peter, and the first of the Apostles who came to Christ, suffered martyrdom about the year 69, on a cross shaped like the letter X, and hence known as the St. Andrew's cross. Part of this instrument of death, and other relics of this apostle were believed to have been brought to Scotland in 369, and deposited in a church-standing where now is the city of St. Andrews. The celebrity of the relics led to the adoption of the apostle as the tutelary saint of Scotland.

NICHOLAS, the tutelary saint of virgins, boys, sailors, and parish-clerks, was made bishop of Myra, in Syria, by Constantine the Great. In connection with a miracle alleged to have been wrought by him in bringing to life two murdered children, there was annually on this day an election at Salisbury of "The Boy Bishop."

PHENOMENA OF THE SEASON.—In the neighbourhood of Winchester the last leaves of the black mulberry fell on the 15th of November; and the night of that day was the coldest we have experienced this year, the thermometer fell to 17 degrees, which is 15 degrees below the temperature at which water freezes. The

INSECTS.—The bulbs of the daffodil and of other species of the narcissus frequently refuse to vege-



	1841.	1842.	1843.	1844.	1845.	1846.	1847.
30	Rain.	Fine.	Fine.	Cloudy.	Fine.	Frosty.	Rain.
1	Cloudy.	Showery.	Cloudy.	Cloudy.	Showery.	Frosty.	Fine.
2	Cloudy.	Cloudy.	Fine.	Cloudy.	Showery.	Frosty.	Frosty.
3	Rain.	Fine.	Cloudy.	Cloudy.	Showery.	Frosty.	Rain.
4	Rain.	Cloudy.	Cloudy.	Frosty.	Showery.	Frosty.	Rain.
5	Cloudy.	Fine.	Cloudy.	Frosty.	Fine.	Fine.	Rain.
6	Rain.	Fine.	Fine.	Frosty.	Frosty.	Fine.	Rain.

tate; and the usual cause is, that their interiors have been eaten by the grub of a two-winged insect, known as the Narcissus-fly (*Merodon Narcissi*). This disappointment may be avoided if these bulbs are examined at the present season before being planted.

In the month of November, says Mr. Curtis, one or two large roundish holes are sometimes found on the outsides of the bulbs of the daffodil and narcissus. The bulbs are generally found, which by feeding in the heart during the summer and autumn months, has been the sole author of the mischief. This larva is somewhat like the flesh-maggot, and not unlike a bot, only that it is not jagged with spines, and instead of being whitish, its natural colour, is changed to brown by its living amongst the slimy matter which has been discharged from its own body, causing the gradual rotting of the bulb. Towards the end of November the maggot is transformed into a pupa, to accomplish which it eats its way out of the bulb near the roots, and buries itself in the surrounding earth. The pupæ are dull brown, egg-shaped, rough, and strongly wrinkled. In this state they remain until the following spring, when the flies issue from them. Their eggs are then deposited, but upon what part of the plant they are laid, has not been observed, but probably upon the bulb near the base of the leaves. April seems to be the month when most of the flies hatch; and they have been compared to small humble-bees, from the disposition of the colours, which are, for the most part, yellow, orange, and black, but they certainly bear a greater resemblance to some of the bot-flies; from bees they are readily distinguished by having only two wings, the horns and proboscis are totally different, and they have no stings.

Bulbs affected by these maggots are readily detected by their not throwing out leaves; when therefore a bulb fails to vegetate, it ought to be immediately dug up and destroyed.—*Gardener's Chronicle*.

Nor even the most uninformed of our readers is ignorant of the fact, that his pigs and his chickens partake of the colour and shape of both their parents, and that he thus has a ready mode of improving them. If his sow be small, he resorts, to improve the size of her progeny, to some neighbouring boar of superior size; and if his chickens are tender or unthrifty, he adds to his hen-roost some cockerel of superior vigour and hardihood. All this is a mere matter of course with cottagers; yet when we tell them they may effect just the same changes in their garden vegetables, fruits, and flowers, some of them, probably, will not at once give credit to the statement. Nevertheless, it is quite true, for every plant has male

and female flowers, either separate or united, and unless both are present and healthy, no plant yields fertile seed. So if by a bee, or any other means, a few grains of pollen (dust from the male flowers) are borne from one plant to the female flower of another plant of the same, or nearly the same kind, that female flower will produce seed partaking of the nature of both parents.

This is no recent discovery, for Moses, when delivering ordinances to the Israelites for their worldly welfare, and bidding them to add battlements to the roofs of their houses, that no man might "fall from thence," adds also the direction that they should not sow the vineyard "with divers seeds," lest its fruit

should "be defiled." (*Deut.* xxii. 7—9.) Similar knowledge may be found in the writings of the earliest Greeks and Romans; but it was knowledge from which no benefit was derived.

More and more facts relative to the existence of male and female flowers were gradually ascertained, but it was reserved for the late President of the London Horticultural Society, Mr. Knight, to render all such knowledge useful.

This gentleman, residing in Hertfordshire, the very centre of the orchard districts of England; and observing how the favourite varieties of their apples and pears were wearing out, directed his attention towards the best mode of obtaining new and better kinds. This was necessarily a work of time, for Mr. Knight's seedling fruit-trees required some years to elapse before they would produce fruit, and thus prove whether his experiments were successful. He therefore determined to try in the mean time some similar experiments on a plant that would give a more speedy result, and for that purpose he selected the garden pea. This was well suited for his experiments, both by the quickness of its growth and the many kinds of pea that were even then existing, all varying in size, form, and colour. In 1787 he had a degenerate sort of white pea growing in his garden at Downton; a sort which no superior richness of soil in any way improved, and this, therefore, was selected to be the female parent in his experiments. Before its blossoms were quite open, with a pair of finely-pointed scissors he cut away their male organs, leaving the female organs in the centre of each blossom uninjured. So soon as these blossoms were fully blown, some pollen from a very large and vigorous grey pea, blooming at the same time, was introduced into one half of the blossoms that had been mutilated, but not into the other half. The pods of all grew equally well, but the seeds in those where no pollen had been introduced withered away; the seeds of the other half ripened without showing any marked difference from those in other pods on the same plants. But when they were sown the following spring, the success of the experiment was very evident. The plants they produced were vigorous, and the seeds from these plants were gray. By serving the flowers of the variety thus obtained in the same way as its mother had been served, and adding to them the pollen of better sorts, other and better varieties, still more different, were obtained, and among them were two of the best now grown, and known as Knight's Tall Marrow, or Wrinkled Pea, and Knight's Dwarf Marrow.

Mr. Knight's experiments on the apple, pear, cherry, plum, and peach were similarly successful. Many other horticulturists have since followed in the steps which he first took, and hence we have those extraordinary improvements, not only in fruits but in flowers, such as geraniums, fuchsias, dahlias, and many others; all of

which are obtained by crossing one kind with another, by taking the pollen from one to the female flower of a different plant of the same kind.

Every one having a garden could try similar experiments; and it is for the purpose of rousing the attention of our readers to the subject that we remark upon it thus fully. To guide them in their experiments we reprint some Rules that we published elsewhere a few years ago:

1. The seed-vessel is not altered in appearance by impregnation from another plant; therefore, no hasty conclusion of failure is justified by that want of change.

2. The colour of the future seed, not of that first hybridized, seems to be most influenced by the male parent, if its seeds and flowers are darker than those of the female. Mr. Knight found, that when the pollen of a coloured-blossomed pea was introduced into a white one, the whole of the future seeds were coloured. But when the pollen of a white blossom was introduced to the stigma of a coloured blossom, the whole of the future seeds were not white. Capt. Thurtell, from his experiments on the pelargonium, also informs us that he has always found the colour and spot of the petals to be more influenced by the male than by the female parent. Indeed, all experience proves that the progeny usually, though not invariably, most resembles in colour the male parent.

3. Large stature and robustness are transmitted to the offspring by either parent. It does not absolutely matter for obtaining this characteristic, whether it be the male or female which is large; but Mr. Knight generally found that the most robust female parent produced the finest offspring.

4. Capt. Thurtell, from lengthened observation and experiment, has ascertained that the form of the flowers follows most closely that of the female parent.

5. Mr. Knight says that the largest seed from the finest fruit that has ripened earliest and most perfectly should always be selected. In stone-fruit, if two kernels are in one stone, these give rise to inferior plants.

6. The most successful mode of obtaining good and very distinct varieties, is to employ the pollen from a male in a flower grown on another plant than that bearing the female parent. To avoid previous and undesired impregnation, the anthers of the male parts of each flower in the female parent, if they are produced in the same flower with the pistils, or female parts, must be removed by a sharp-pointed pair of scissors, and the flower inclosed in a gauze bag, to exclude insects, until the desired pollen is ripe. Another effectual mode of avoiding undesired impregnation is, bringing the female parent into flower a little earlier, and removing the anthers as above described; the female parts of the flower will remain a long time vigorous if unimpregnated.

7. Although the fertility of all the seed in one seed-

vessel may be secured by applying pollen only to one style, even where there are several, yet the quantity of pollen is by no means a matter of indifference. Koelruter found, that from fifty to sixty globules of pollen were required to complete the impregnation of one flower of *Hybiscus Syriacus*; but in *Mirabilis jalapa*, and *M. longiflora*, two or three globules were enough; and in the case of pelargoniums, Capt. Thurtell says two or three globules are certainly sufficient.

8. M. Haquin, a distinguished horticulturist at Liege, has impregnated flowers of the Azalea with pollen kept six weeks, and Camellias with pollen kept sixty-five days. He gathers the stamens (male organs) just previously to the anthers (their tops) opening, wraps them in writing-paper, places them in a warm room for a day, collects the pollen they emit, and preserves it in sheet-lead in a cool dry place. M. Godefroy suggests, that two concave glasses, like those employed for vaccine virus, would be better. The globules of the pollen must not be crushed. M. Haquin thinks the pollen of one year will be effective if preserved until the year following. Mr. Jackson, of Cross Lanes Nursery, near Bedale, says, he has found the pollen of the *Rhododendron Smithii tigrinum* retain its fertilizing power even for twelve months.

9. It is easy to discern whether impregnation has been effected, as in such case the stigmas soon wither. The stigmas which have not received the pollen remain for a long time green and vigorous. "By the aid of the Stanhope lens," observes Capt. Thurtell in a letter now before us, "I fancy I can discover the seed of the pelargonium being closed over in the space of four hours after impregnation."

10. When double flowers are desired, if a double flower should chance to have a fertile anther or two, those should be employed for fertilization, as their offspring are almost sure to be very double.

11. Plants nearly related, that is, closely similar in the structure of their various parts, are those only which will immediately impregnate each other; but it is impossible at present to say what families of plants may or may not be brought into fertile union through intermediate crosses. A very short time ago the azalea and rhododendron were thought incapable of such union; but this opinion is now exploded, for *Rhododendron Ponticum* has been fertilized with the pollen of *Azalea Sinensis*, and the progeny between that evergreen and this deciduous shrub is the previously unknown phenomenon, a yellow rhododendron. Though such unions may be effected, we entirely agree with Mr. Knight in anticipating that the progeny will be mules, incapable of producing offspring.

The applications for Himalayah pumpkin-seed have far exceeded our supply; a few of the earliest applicants had two seeds each, many had only one seed, and the latest, still more in number, had their postage-stamps returned. We hope to have a better supply next year; and those to whom we have been able to send, we trust will save seed, and distribute it in their respective neighbourhoods.

To two applicants, "*Mr. James Gilbert*" and "*Mr. George Howard*," we cannot send, because they have not given us their directions. If these correspondents will send their full directions, they shall hear from us.

THE FRUIT-GARDEN.

STATIONS FOR FRUIT-TREES.—Where the garden-soil is pretty good, these may be dispensed with; but in the majority of cases some preparation is required, especially in order to carry out what we term a dwarfing system, which alone is adapted to limited gardens, where vegetable culture forms a most important item; for of what use is it to plant gross kinds of apples, or other fruits, in such small plots, unless means are taken to prevent their over-luxuriance? How many gardens of the kind have we all seen, in which some huge tree overshadowed whole polss of ground? whilst a continual conflict existed in the mind of the proprietor, as to whether it were expedient to cut the leviathan down. In a good season, with plenty of fruit, the monopolist character of such a tree would be overlooked; but come a bad year or two together, and the question again recurs, whether the ground beneath the huge branches would not profit more on the whole under vegetable culture? It is not easy, however, to rear such trees; and the conviction of this deters many from applying the axe in due time, and the consequence is, in a majority of cases, that a decided loss occurs to the proprietor, in the long run, without his perceiving it. On such a course of argument, then, we lay the foundation of a dwarfing system, which of course involves the consideration of both stocks, soil, and even root-pruning. We would here beg to dissipate a very common error as to those matters. Many think they can keep trees within the desired limits by pruning alone: nothing can be more fallacious. Certainly, the axe or the pruning-knife may at any time reduce the tree to

one-half its original compass; but what then? From that moment it ceases to be fruitful, or, more properly speaking, profitable; and the tendency of the tree henceforth is to produce abundance of watery growth, which, we need scarcely add, are indisputable symptoms of barrenness.

We have now to deal with the preparation of the soil for carrying out such a dwarfing system, or in our way of terming this subject, "*station-making*." It is astonishing what a very limited amount of soil, if of a proper staple, will suffice for a compact fruit-tree under this dwarfing system. We have a score or two of pear-trees trained horizontally, a foot from the soil, which were planted by ourselves eighteen years since, and which now cover not more than forty square feet; some of these produce annually on an average two or three pecks of first-rate Flemish pears. These trees were planted on stations, the natural soil of the ground being a loose, sandy loam, of a very porous character. We merely introduced about four barrowfuls of very adhesive loam to each tree; and these trees are in the best of health, and increasing in produce annually. We have no doubt that they will endure for at least twenty years longer. In many fresh enclosed gardens, it is both easier and more economical to make such stations, than to carry out general improvements, adapted at once to fruit and vegetable culture. Moreover, the plan we are about to recommend, frequently supersedes the necessity of any special drainage on behalf of the fruit-trees. After marking out the desired position for the stations, the first thing to be considered is, whether the ground

is naturally too wet or too dry. If the former, the hole need only be half the prescribed depth; the other half may rise above the ordinary ground level. If too dry, there is no occasion to elevate the surface, only care must be taken not to place the collar of the tree too deep, which is a serious fault under all circumstances. Our stations are made to extend three feet on each side the position for the tree, thus producing an excavation of six feet square. We consider two feet in depth amply sufficient for any fruit-tree, especially for a dwarfing plan. The soil then should be thrown entirely out, and four or five inches more must be allowed for some impervious material, which we will presently describe. In throwing out the soil, care must be taken to place it in samples, or both labour and material will be wasted. It very frequently happens that three distinct samples of soil or sub-soil will come to hand during the operation. Of course all clayey, or sour, and badly-coloured subsoil must be rejected, and its amount will be supplied by the new material to be introduced; and if this is scarce, any ordinary surface-soil may be in part substituted. In filling the materials back again, the best of the original surface-soil must be kept downwards, mixing it thoroughly with the new soil; the inferior or second-rate soil may be kept to dress the surface with. As to character of soil to be introduced, that depends partly upon the soil already existing in the garden, as well as on the kind of fruit-tree about to be planted. If the soil is naturally sandy and dry, a very stiff or clayey loam should be selected; if naturally clayey, any fresh, mellow, sandy loam, or even the paring of road-sides, commons, or lanes will prove excellent material; indeed, *these should at all times be collected by the cottager*, as they prove of immense service, when mellowed down, for dressing carrot and onion beds, which are liable to the grub in old soils. The furrowings of old leys from what is considered good wheat soil, is, however, of all other soils the best adapted for general fruit culture. This, we fear, is seldom within the reach of the cottager. Whatever materials are used, let it be remembered that the more of turfy matter that can be introduced, the longer will the compost endure. Any sort of turf, even from hungry situations, is most relished by fruit-trees. If, nevertheless, no turf can be obtained, and the soil is loose and poor, it is well to introduce any refuse vegetables of a dry character, such as decayed bean or pea haulm, ordinary straw, old thatch, or indeed anything of a decaying vegetable character which is strong in fibre and enduring. If any manure is thought necessary, it should be fresh from the stable or cow-shed, as such will endure longer in the soil; merely using one barrowful of mellow and rather rich soil to plant the tree in. As before observed, the most inferior portion of the soil may be reserved to dress the surface of the station with, after the tree is planted; here it will do no harm, and will be in an improvable position.

We come now to the hard materials for the bottom of the hole; four or five inches in depth, as before stated. It matters not what this is composed of: broken stones from quarries, brickbats, chalk, cinders, or clinkers, &c., all are eligible. These being rammed hard, our practice is to throw a coating of fine riddled cinders over the whole, or very fine gravel: this secures drainage and prevents the roots entering to any injurious extent.

PRUNING (*continued*):—**THE RASPBERRY.**—Early autumn pruning is of benefit to the raspberry, which, being of an excitable character, begins to swell betimes in the spring; and pruning after the buds are swelled

is always at the expense of the vigour of the plant. The pruning of this fruit is very simple indeed. The plants produce their fruit on long rods of the previous year's growth; at least the ordinary kind does. What is termed the double-bearing or autumnal raspberry produces on wood of the same summer's growth, or, in other words, on the annual wood. Of this kind we shall offer some special remarks in due course.

It is the practice in June to go over the raspberry bushes, and thin out the young suckers or rods, for they in general produce so abundantly, that they would become confused, and the character of the fruit would be materially injured. About half a dozen of the best are left to select from, and it now becomes necessary to reduce this number. We think that four good rods are better than more; this, however, depends on the strength of the soil, and more especially its continued moisture, even in summer, which is an essential with the raspberry and the black-currant, as we before observed. If any of the stools or parent plants are very weakly, they must be allowed a less number of shoots; some three, others only two, and in some *very weakly* roots, it is necessary to cut them entirely down, in order to strengthen them for the ensuing year. In selecting the canes, the strongest must in the main be preferred. It is worthy of remark, however, that when they are very gross indeed, some of the canes are liable to produce side branches during the season they are springing. Such must be cut away, for, although so promising in appearance, they will not produce such nice fruit as those of a reasonable amount of strength, and, indeed, prove of too monopolist a character,—drawing too much of the sap into their huge vessels. About five feet is the greatest height to which the raspberry canes should be cut: our practice is, however, to cut the canes at different lengths. Thus, suppose four canes on a stool,—we cut the strongest to five feet, the second in point of strength to four feet six inches, the third to four feet, and the fourth to little more than three feet. Now, as the top buds grow strongest, it follows, by this arrangement, that the young fruit-bearing shoots, which grow from the canes, are more equally divided and enjoy more room, and, of course, more light. Such completes the winter's pruning, after which the canes must be staked, and the soil about them top-dressed. The top-dressing we consider an important matter in their cultivation. As we have not space to complete our remarks on this useful fruit, we must reserve them for a little while, when we will give the general culture more at large.

DRAINING.—We have now fairly turned our back on the past year, as far as cultivation matters are concerned. There has been a vast amount of rain on the whole, which will surely have led many to consider seriously the great importance of draining. Much has been written and said about its importance, and which to some minds might savour of exaggeration. For our own parts, we are assured that this great fundamental step to all good culture has never been treated of according to its merits. It is indeed so broad a matter, that it is a national question. If any one can prove that some twenty or thirty per cent. more produce could be created by this mechanical process alone, and that extra employ could be produced for years for our surplus labour, he would indeed give some importance to the affair. This we conceive is by no means difficult to prove. Doubters will of course say, where is the capital to come from? We ask, in return, where did the railway capital come from? or who anticipated such an amount of adventure twenty years since? R. EARINGTON.

THE FLOWER-GARDEN.

GENERAL FLOWER-GARDEN.—The operations in the flower-garden now comprise removing into winter quarters all the summer flowers, such as verbenas, scarlet and other geraniums, petunias, dahlias, &c. When these are all removed, the beds should be manured and dug, and their places either filled up with evergreens in pots, or planted with bulbs. We mentioned in detail all these things in a former number, and only repeat the notice to prevent any neglect. The digging, pruning, and replanting of the shrubbery will be going on during fine weather; and during wet or snowy days, roots may be put away, sticks and labels made, mats tied, bundles of mat in proper lengths cut, and put in a place ready to be used to tie up the flowers next season. Hooked pegs may likewise be made in such quantities as may be likely to be wanted for layering or pegging-down verbenas and other things that require training on the earth's surface. In fact, every thing ought to be done that will save time in spring, for at that season every hour will bring abundance of work, and all those useful little things being ready, there will be no time lost in seeking for them at the moment they are wanted.

AMATEUR'S FLOWER - GARDEN. — ORNAMENTAL HEDGES.—We treated pretty largely upon protective fences in our last Number, and shall now fulfil our promise by describing the ornamental one. By this term is meant, a fence or division formed with a row of deciduous flowering or handsome evergreen shrubs. Flowering deciduous shrubs for this purpose may consist of sweet briar, roses, *Pyrus japonica*, *Daphne mezereum* (mezereon), *Deutzia scabra* (rough-leaved deutzia), lilacs, sweet gale, *Syringa*, double sloe, *Ribes sanguineum* (red-blossomed currant), snowberry, and the double furze. The ornamental evergreens for a hedge may consist of the American, Chinese, and Siberian *Arbor vitæ*, aucuba, box-tree, variegated hollies, Swedish junipers, common laurel, privet, and the yew. All, or any part of these, as may be convenient, may be used for a fence where protection from animals is not required; some of these may be used alone, as, for instance, the *Arbor vitæ*, which by itself is a beautiful, warm, and close-growing shrub, for division fences, to shelter the flower-garden. Again, in deciduous shrubs, the sweet briar and rose make a sweet-smelling and beautifully-flowering division between the flower-garden and kitchen-garden, or from the gardens of others. All those shrubs will bear pruning, to keep them in form. The knife is a better instrument for that purpose than the shears. In planting, do not regularly mix them, but put in three or four of one kind by themselves, then one or two of some other; then again a greater number, with a honeysuckle here and there. When the whole is finished and grown for a season or two, it will appear something like those beautiful natural hedges we so much admire in country lanes.

ROCKWORK.—The amateur and cottager were recommended in a former Number to cultivate the interesting little gems of Alpine scenery. The plants that grow in those elevated regions are many of them very pretty; as, for instance, the *Cyclamen coum*, or round-leaved sow-bread, which, in early spring, may be seen pushing up through the pure white snow its lovely crimson-purple blossoms; and as soon as the snow melts away from our own Ingleborough mountain, the bright purple-flowered, opposite-leaved saxi-

frage garnishes its sides and highest points with its mossy-like appearance and rich-coloured blossoms. These elegant plants may be successfully cultivated and brought together, so as to bring their beauties under our observation without having to travel to seek them in their native wilds. They may be grown, and very well too, either in an artificial imitation of rock, or alpinery, as it may be termed, or they may be cultivated in pots. Upon the latter method we will dilate a little, for this reason, that some of our friends may not have the materials to form this aerial habitation for them, or may not choose to go to the expense. Still, some who have not the convenience of a rockery, might wish to have some of these admired plants, if they only knew how to manage them. We will endeavour to supply that knowledge. To cultivate Alpine plants in pots, three things are necessary,—the proper soil, the right-sized pots, and good drainage.

SOIL OR COMPOST.—Whatever kind of plant we attempt to cultivate, we ought to learn as correctly as possible what kind of soil was natural to it. Now, the soil in Alpine situations we may easily conceive to be of a poor, gravelly nature, formed by the decay of rocks and mosses and other small plants. This soil may be imitated by using heath mould, rotten leaves, and broken potsherds: of the two former two equal parts each, and of the latter one part. In other words, two bushels of heath mould, two bushels of rotten leaves, and one bushel of potsherds, or pieces of broken flower-pots. The whole to be well mixed with one-eighth of coarse white sand.

POTS.—Those plants in nurseries are generally grown in small pots, about five inches diameter. The proper size to grow them fine in, is a pot nine inches across at its top. It should be rather shallow, about seven inches deep, and be pierced with holes to admit air to the soil. These pots may appear rather large for such small plants, but such as are of a creeping habit, as many of the saxifrages, for instance, will soon cover the top of the pot, and such as do not creep may have three or four plants put in one pot. The reason why we recommend such pots, is to have fine specimens. We have seen them grown in such pots, and they were so fine, both in growth and flower, as to appear almost like gigantic varieties of their puny brethren, as grown in small pots; in fact, quite equal to the finest plant on the best-managed rockery.

DRAINAGE is the third important article in the culture of Alpine plants. Unless the pots are well and perfectly drained, the plants will soon turn yellow and die. The way to drain them is to place over or against each hole in the pots a piece of a broken pot with its hollow side downward. Then put in so many large pieces as will cover the bottom of the pot one inch thick; upon this stratum place another inch of fine broken pots, the dust being sifted out (the fine sifting will answer well to mix with the compost), and over this second layer place some of the rough fibrous parts of the soil; the pot is then ready for filling with the compost and receiving the plants.

SITUATION.—There is an advantage in having these plants in pots, that they can be removed to suit the seasons. During hot weather the best situation for them will be on the north side of a low hedge or wall, but in the early spring or late autumn, the east side of

the garden will be the place for them. During winter, a bed covered with hoops and mats will be a good habitation for them.

WATERING.—Whilst the plants are growing, they should be watered freely, but should be kept pretty dry during winter. All these minute particulars may appear to the practical man to be too precise, but to the uninformed we are conscious such instruction cannot be too explicit; and we are so much delighted with Alpine plants, when well grown, that we could like to infuse the same feeling into every amateur and cottager in the kingdom.

To complete this essay on the Alpiner, we subjoin a short select list of those interesting little gems of the Alpine region.

- Ajuga genevensis* (Geneva Bugle). Purple.
Alyssum saxatile (Rock Madwort). Yellow.
 " " *variegatum* (Variegated).
Arabis saxatile (Rock Wall-Cress). White.
 " *lucida variegata* (Shining-leaved Variegated Wall-Cress). White.
Arenaria verna (Early Sandwort). White.
Aretia Vitaliana (Vital's Aretia). Yellow.
Aubrietia purpurea (Purple Aubrietia). Purple.
Campanula nitida alba (Shining Bell-flower). White.
 " *pumilla alba* (Dwarf ditto). White.
 " *pulla* (Russet ditto). Blue.
Chieranthus alpinus (Alpine Wall-flower). Yellow.
Cornus Canadensis (Canadian Dogwood). White.
Cortusa Mathioli (Mathioli's Bear's-ear Sanicle). Red.
Coronilla minima (Least Coronilla). Yellow.
Dianthus alpestris (Rock Sweet-William). White.
 " *Hendersonii* (Henderson's ditto). Bright Red.
Draba aizoides (Aizoon-like Whitlow-Grass). Yellow.
Erinus alpinus (Smooth Alpine Erinus). Purple.
Erodium Reichardii (Reichard's Heron's-Bill). White.
Gnaphalium dioicum (Diæcious Everlasting Flower). Pink.
Gypsophila prostrata (Trailing Gypsophila). White.
Linaria alba alpina (Alpina Toad-Flax). White.
 " *Cymbalaria variegata* (Variegated Cymbal-leaved Toad-Flax). Rose-colour.
Myosotis rupicola (Rock Scorpion-Grass or Forget-me-not). Blue.
 " *palustris* (Marsh ditto ditto).
Phlox divaricata (Early-flowering Flame-flower). Blue.
 " *nivalis* (Snowy ditto). White.
 " *setacea* (Bristly ditto). Red.
 " *verna* (Early ditto). Purple.
 " *procumbens* (Trailing ditto). Lilac.
Potentilla reptans pleno (Double-creeping Cinquefoil). Yellow.

- Primula auricula alpina* (Alpine Bear's-ear Primrose). Various.
 " *farinosa* (Mealy Bird's-eye ditto). Lilac.
 " *nivalis* (Snowy ditto).
 " *marginata* (Margined ditto). Rose.
 " *ciliata purpurea* (Fringed ditto). Purple.
Saponaria ocymoides (Basil-like Soap-Wort). Pink.
Saxifraga granulata pleno (Double-grain-rooted Saxifrage). White.
 " *muscoides* (Moss-like ditto). Yellow.
 " *nivalis* (Snowy ditto).
 " *oppositifolia* (Opposite-leaved ditto). Purple.
 " *pedatifida* (Bird's-foot ditto). Purple.
 " *pyramidalis* (Pyramidal ditto). White.
 " *retusa* (Close-sitting ditto). Purple.
 " *rosularis* (Rose-shaped ditto).
 " *stellaris* (Star-like ditto). White.
Sedum dasyphyllum (Thick-leaved Stonecrop). White.
 " *monstrosum* (Monstrous ditto).
 " *rupestris* (Rock ditto).
 " *Sieboldii* (Siebold's ditto).
Sempervivum arachnoideum (Spider Houseleek). Red.
 " *globiferum* (Globe-bearing ditto). Red.
 " *tectorum* (Roof ditto). Red.
 " *Webbianum* (Webb's ditto). Red.
 " *montanum* (Mountain ditto). Red.
Silene acaulis (Stemless Catchfly). Pink.
 " *quadridentata* (Four-toothed ditto). White.
Soldanella alpina (Alpine Soldanella). Purple.
 " *minima alba* (Smallest White ditto).
Thymus corsica (Corsican Thyme). Purple.
 " *serpyllum* (Wild ditto). Purple.
 " *azorica* (Azorian ditto). Purple.
Veronica montanum (Mountain Speedwell). Blue.
 " *saxatile* (Rock ditto). Blue.
 " *taurica* (Taurian ditto). Blue.
Vinca herbacea (Herbaceous Periwinkle).
 " *minor rubra pleno* (Lesser double Red ditto).
COTTAGER'S FLOWER-GARDEN.—We have taken up so much space with our favourite Alpines, that we can only say to our cottage friends, appropriate all we have written to yourselves, and, as much as you possibly can, make use of it in your own flower-garden. You can cultivate rock-plants as well and as easily as your richest neighbour. Many of them will grow on the roof of your cottage or any low walls about your dwellings. Try to procure some; we are quite sure they will delight you.

FLORISTS' FLOWERS.

(This subject must be deferred till next week.)
 T. APPELBY.

WINDOW AND GREENHOUSE GARDENING.

CLEANSING THE LEAVES.—Without cleanliness no rule or mode of growing plants can answer long. Dust and insects are the great enemies to successful cultivation.—Doubtless it will sound strange to those who never heard of it before, that plants breathe and perspire just as we do ourselves; this has been proved, however, beyond a doubt. The leaves of plants have the power of breathing, perspiring, and also of digesting the food necessary for them. A leaf, then, has to perform the duties which are the par-

ticular offices of our lungs, stomach, and skin; and we all know that when anything is amiss with these parts of our mortality, our system is deranged. It is even so with plants when their leaves get out of their working condition by accidents, filth, insects, or any other cause whatever. How necessary, therefore, that we should bestow much care and attention to the leaves on our plants. The safest way to free them from dust is to water them often over their leaves, or "over-head," as gardeners say, with the rose of a

watering-pot; but lest you should do more harm than good, special directions must be given for this operation, simple as it is. Take the pots to a convenient place out of doors, turn them all on their sides in a row, then hold the watering-pot as high above them as your arms will reach, and let a heavy shower fall on the leaves; then turn the pots, to get at the rest of the leaves in the same way. Unless the pots were placed on their sides, all this watering would make a puddle of the soil in the pots, and the remedy would be worse than the disease. Another easy way of freeing the leaves from dust is by squirting water on them with a hand-syringe: but for the consolation of the many who, having a few plants in the window, yet cannot afford to buy a syringe, the rose of a watering-pot will answer just as well.

DESTROYING INSECTS.—Insects are great enemies to plants, as they feed on their juices, and so deprive them of part of their nourishment, besides covering them with filth. Fortunately, however, the most part of these insects are easily kept down, or got rid of altogether. When they come in swarms on the plants in a greenhouse, smoke from tobacco-paper kills them instantly; but for a few plants in a window, it is not necessary to use smoke, and if it were, it would be inconvenient. The simplest and cheapest way to keep window-plants free from insects is tobacco-tea. Every one knows how to make tea of any herb,—camomile-tea, sage-tea, mint-tea, and all kinds of tea are made by pouring boiling water over the dry herb, and the infusion is called tea. Tobacco-tea is made like the rest, and as much good shop tobacco as would fill John's or Harry's pipe will make a wine-glass full of tea in five minutes, and that quantity will clean a great number of plants. Dip a bit of sponge or woollen rag in the tea, and moisten the underside of the leaves, their stalks, and all the green parts about the top of the plant. If the creatures are alive in half an hour afterwards, your tea was not strong enough, and you must try again; for there is no question about the effects of tobacco-liquor or smoke on insects. Who, therefore, would have dirty-looking plants in their houses, seeing how easily they may be kept free from all disfigurements?

THE CYCLAMEN.—There is a little family of plants called Cyclamens, or Sow-Bread, in English books, consisting of half a dozen sorts, and for window-plants there are few in cultivation more suitable, particularly one sort of them called the Persian Cyclamen. Of this there are four or five varieties, differing only in the shades of their colour or markings of the flowers; all of them are particularly gay and pretty lady-like flowers, and so easily managed and increased that no one should be without some of them who is at all fond of flowers. I believe there is no place to grow them in better than a good window, if they are allowed plenty of fresh air. No plants are easier to manage than these cyclamens, none more free from insects; and if you possessed half-a-dozen of them, you might have one in bloom from October to May, simply by bringing in one at a time into a warm room. They are very old-fashioned plants, as plentiful as blackberries, and so cheap that you might almost buy one for an old song. Every nurseryman in the kingdom with a greenhouse has lots of them. And yet, for all this, one hardly ever sees them grown as window plants—the place of all others where they are seen to most advantage. The reason why they are not generally grown, must surely be that people do not know them, or never see them in perfection. They ought to be seen in the seed-shop windows all the winter, like hyacinths, and if they were as well known as hyacinths, they would meet with a ready sale. Nur-

serymen, however, having little demand for them, do not bestow much pains on their cultivation, and, therefore, what few flowers their plants produce never attract much attention. There are some few exceptions to this rule. Mr. Wilmot, a celebrated London market-gardener, has been more successful with the Persian cyclamen than any one else that I ever heard of. He says he “frequently counted from fifty to eighty fine, strong, expanded blossoms from a bulb two years old, growing in a forty-eight-sized pot.” That is, a small pot only six inches wide over the mouth. What an extraordinary sight it must have been to see a little bulb, not larger than a middle-sized apple, produce eighty blossoms at one time! Each of these blossoms stand on a stiff footstalk, sufficiently long to keep the flower well up above the leaves. The flower is divided into several divisions or segments, down to the bottom, where they twist and bend backward, giving the whole flower a peculiar appearance, adding much to its gaiety and interest. The colour of the flower varies in seedlings from pure white to pale lilac and pink. Some have a deep-pink eye, others are spotted and blotched with pink on a white or French white ground, and some of them are sweet-scented. There is also one which is double, but it is very scarce, and is likely to remain so, for the whole of them are only increased by seeds with any certainty, and it is only at chance times that a double one appears among the seedlings. Those who are not acquainted with these cyclamens may form a general idea of them, if I say they are solid bulbs, much like a young turnip in shape, with their leaves and flowers growing together immediately from the crown of the bulb without any branches. The size of the bulbs varies in the different kinds from that of a nutmeg to a large round apple. It has been said that the wild boars eat these bulbs, and that hence it was that our old herbalists named them “sow-bread,” a stupid name, English though it be. We might as reasonably call our turnips “cow bread.” Cyclamen on the other hand, is a pretty, short name, easily kept in mind. Now, to grow these beautiful little plants, so as to make gay ornaments for our windows, it is only necessary to pot them in upright or bulb-pots, using good rich soil. Any good garden-mould will answer, if a little leaf-mould, or very rotten dung in a dry state, is mixed with it. The pots must be very well drained; first with an oyster-shell, or hollow piece of potsherd, over the hole, and then an inch deep of small crocks over that; potsherds, or crocks, are pieces of flower-pots broken small with a hammer. The bulb should not be all buried in the soil, like most bulbs, but only half its depth. The reason for leaving the crown of the bulb out of the soil, is that the leaves and flowers grow immediately from that part, and if it was buried their footstalks would be in the soil, and get often injured by frequent waterings. Turnips always grow best when they are only one-third covered with earth, and so it is with cyclamens. Being solid, like the turnip, water cannot hurt them, as it often does those bulbs which are formed of different coats or layers, by getting to the heart of the bulb between these layers. Cyclamens are not thirsty plants, not requiring much water; but the soil should not get too dry. They keep in bloom two months,—a fresh quantity of flowers rising up all the time to succeed those that fade. As each flower drops off the flower-stalk will begin to twist like a screw, holding the seed-pod in the middle, and by the time the seeds are ripe the screw is hid down among the leaves. A beautiful provision for protecting the young seeds from the birds and also for sowing them close under

the shelter of the parent plant—reminding us of that beautiful passage in Scripture, where our Saviour says, "How often would I have gathered thy children together, as a hen doth gather her brood under her wings." While many plants scatter their seeds in all directions, the lowly cyclamen gathers her seeds under her own protection. The seeds of all the cyclamens require to be sown as soon as they are ripe, but of that, and how to rear young plants from them, it will be time enough to write when the proper time comes. I shall give a list of all their names shortly, for they are peculiarly adapted for window plants. What I have here stated refers chiefly to the Persian cyclamen, the best of them, and the easiest to be met with.

TURNING WINDOW PLANTS.—There is a cottage not far from here with three windows full of plants, and some of them good plants too, but they are all sadly disfigured by growing to one side. Plants with their leaves on cannot live without light, so they turn sideways, striving to receive as much light as the window will afford; and to prevent them from growing out of shape in that way, they ought to be turned round every two or three days.

CALLA ETHIOPICA.—Ethiopian Arum, or the Arum plant, as it is generally called by country people, is good for the window or room, when grown as a winter plant. I saw a very fine large plant of it in flower in our village the other day, standing on a table along with some fine-looking camellias, one of which, a double white one, was in flower. The lady who owns these has no more convenience to grow them than a two-light pit and the windows; but I never pass without seeing her windows full of fine-looking plants. Winter and summer, there are always some to be seen in flower. One secret of her good management is, keeping the plants scrupulously clean. I think I never saw such beautiful glossy leaves on a camellia before, as those on this lady's. For cold rooms, or where only occasionally fires are kept, the camellia seems to be one of the best plants to fill up a stand. But I am neglecting the arum. It is not because I saw it so fine with this lady that I recommend it, but because it is one of the very easiest to manage by a new beginner, for it seems to do well under any kind of management. Many plants dwindle away and die because receiving too much water; but no amount of watering will injure the arum; indeed, it is one of those easy-to-do plants that will live in water or out

of water, all the year round, and it is so hardy, although a native of Africa, that it will live out all the winter, if grown in a pond: so that it is quite safe to leave a saucer full of water under it all the time it is green, or in a green state. After it has flowered, and when the leaves begin to turn yellow round the edges, it will be time to keep it more dry; till at last, as the leaves get quite yellow it may be allowed to get dry altogether, and then may be placed anywhere out of sight. When it is in this dry state is the proper time to increase it. It is multiplied by the roots, like potatoes. Shake off the dry soil from the roots, for at that season the roots are in their most inactive state, and are not at all injured by being shook out of the soil, any more than potatoes are when lifted in the autumn. The roots are thick fleshy tubers, not unlike long kidney potatoes in shape and substance. From these fleshy tubers, strong roots branch out into the soil: these last you will preserve whole as much as possible. You will find abundance of small tubers, or offsets, attached to the old roots; each of these offsets has an eye, like the potato eye, and when separated from the parent root will make a young plant, and they are so numerous that, unless you mean to give some of them to your friends, you need not keep the half of them. Choose the largest offsets, as they will produce plants that will come into flowering sooner than the smaller ones. You may put each offset into a small pot, and when it begins to show leaves, water it like the old plant, or, what is better, if you have a garden, plant the offsets three inches deep and six inches apart, in a rich, light border, where they will grow faster than in the pots, and throw coal-ashes, or any litter, over them in winter, and in two years they will be large enough to flower, and may then be potted to flower in the window. Besides the facility of increasing it, and the ease with which it may be flowered, the arum is that kind of plant that looks bold and stately, and such as one would like to see in the middle of a stand of flowers. The leaves are nine or ten inches long on strong footstalks from ten to twenty inches high, the flower-stalk rises from among the leaves, and overtops them with a large snow-white flower, at the top, in the shape of a common arum flower; hence its name. The common arum of our hedges is locally known by many other names, such as Lords and Ladies, Bloody Men's Fingers, etc.

D. BEATON.

THE WEEK'S KITCHEN-GARDENING.

ASPARAGUS take up from an old bed for forcing. Carefully commence on one side one of the outer rows so the bed by digging out a trench, forking the earth as much as possible from underneath the plants, so that they may easily and without straining or injuring their roots be moved out entirely, by thrusting down the fork behind them. Be very careful at the same time that the buds about the crowns of the plants are not injured by the fork, or of being trampled upon, or of being bruised in any way during their removal. Obtaining handsome strong shoots, depends much upon the care with which the plants are thus handled. Asparagus is very easily forced, and is very productive under the treatment when properly managed. It may be forced in various modes through the winter; but those who have the command of hot water, to give it a moderate bottom-heat, will find this give the least trouble. It may also be grown in winter in any kind of forcing-house,

either in boxes filled with earth, or in a pit filled with leaves, tan, or other fermenting materials. Melon pits and frames may be used for the same purpose; the hot-bed may give but a slight heat, and on it may be put six inches of old tan, or leaf-mould. Put the asparagus plants into this, and keep them during the winter months about one foot from the glass. Cover them at first only slightly with the old tan or leaf-mould; but in ten days or a fortnight add three or four more inches of the same kind of covering. Take care that altogether the crowns of the plants are not covered more than five or six inches deep. When the plants have begun to grow freely, and the shoots begin to appear through the surface, give them some weak, slightly warmed, or tepid, liquid manure, adding to each gallon of it two ounces of common salt. This will increase the size and flavour of the asparagus.

CELERY.—Take care to have that which is forward

earthed-up thickly before any continued severe frost sets in. Do this earthing-up during dry windy days.

LETTUCE.—Young, late-sown lettuce-plants require at this season particular care. They must have plenty of air admitted night and day into the frames by which they are protected, for if they are not kept dry, they will mildew and decay. Dry loam and charcoal-dust are of the greatest benefit, if sifted among the plants.

MICE.—Take timely caution in setting a number of mouse-traps near the rows of newly-sown peas. The simplest and most efficient traps are prepared as follows:—Soak a few peas in warm water, and when they have begun to grow, take a needle and thread, and, passing the needle through the peas, have two of them on every nine inches of thread. Cut the thread into nine-inch lengths, having two peas on each length. Tie a knot at the end of each length. Take a raspberry-cane, currant-tree shoot, or any pieces of straight wood of similar size; cut these into one-foot lengths; make a slit an inch deep in one of each; thrust two of these lengths six inches into the ground, and just a little further apart than the width of a brick; draw an end of one thread through the slit in each of those two sticks; place a brick with one of its ends on the ground, so that it leans upon the thread; let the thread be very nearly across its

middle, and the two peas on the thread also near the middle, and about half an inch apart. This allows room enough for a mouse to thrust its nose in, so as to gnaw through the thread, without even eating the pea, and thus to become his own executioner. The reason for having the peas sprouted before they are used for baits is because the mice then more readily take them. They never even attack those in the earth until they have begun to grow. Besides setting traps, we recommend the rows of peas to be covered an inch deep with coal ashes. It advances the growth of the peas, protects their roots in the winter, and prevents the mice burrowing down to them.

ROUTINE WORK.—Spinach and other winter standing crops clear from dead leaves and slugs; keep the surface about them open by hoeing; drain all vacant ground, requiring to have all superfluous water removed, taking care to drain deep and systematically; trench spare ground, throwing it up into high rough ridges; repair outside hedges; cleanse ditches and watercourses, employing the earth and refuse taken from them to form the bottom of manure heaps, throwing over it first a few hushels of salt, to destroy the slugs and other vermin; form garden walks, turn old ones, and put the edgings in order.

J. B. & G. W. J.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 7.)

How perseveringly the trumpet honeysuckle blooms, even at this late season! In spite of frosts and withering winds, I find its scarlet blossoms still bright and gay; and it is now the only flower left in my cold northern garden to "fraternize," as our neighbours say, with one lingering wallflower. My honeysuckle, however, is not favourably placed. It ought to be trained against a wall or trellis; but as I possess nothing of that kind to support a creeper, I have twined it round a larch pole, and it does not do well. The aspect, too, is against it; it is exposed to the keen north-east, and the tips of its shoots are black and withered in consequence. Still it blooms cheerfully on, making the best of its situation, like a wise and thankful spirit, reminding us, by its silent example, that when the state of life to which we are called does not exactly suit our tastes and feelings, we should still, with cheerful submission to the Hand that nurtures us, enjoy the good, and turn to the best account the disagreeables of this passing world.

The beauty of the trumpet honeysuckle consists in the shape and colours of the flower, for it is scentless, its stems long, bare, and straggling, and its foliage by no means rich. Against a wall it blooms freely, and this is its proper situation. I always cast an envious glance upon one that decorates a cottage, near which I often pass, and I am told that branches of its flowers are continually given to those who stop to admire it; so that it is useful as well as beautiful, and enables a kindly heart to enjoy the pleasure of *giving*, when it has nothing else to bestow. It is delightful to see the ready kindness with which the cottager gathers her finest flowers for the passer by, who pauses to admire them; and her little child will, following her example, run to its atom of a border, and bring a double daisy, or a marygold, to add to the simple present. In how

many ways, in what little things the disposition shows itself! A benevolent heart is true politeness. I have known, and heard of persons, who can take their friends through hot-houses, darkened with clustering grapes, yet never offer to pluck one bunch. Of how much pleasure do persons such as these deprive themselves! Our gardens might be allowed to exercise those feelings of benevolence that cannot, perhaps, expand in any other way; and where we do possess the abundant blessings of this world, it adds intensely to their value, when we give to those who need. A lady—the dear and valued friend of a member of my family—devoted the rich contents of her graperies to the sick and poor!

The common honeysuckle—one of the sweetest flowers we possess—should be much encouraged. The plant thrives either as a climber or as a bush, and in each form it is delightful. It is very subject to a gummy sort of blight, like honey dew, which makes it unpleasant to the touch, and ruins its beauty, for the season; and I have heard ladies complain that their honeysuckles were never free from it. Now, I have in my garden two young hollies, which have been for many years covered with a redundant mass of honeysuckles, looking, in fact, like honeysuckle trees; and I have also a hedge of the same lovely plant on one side of my garden; yet I have never once known them to be affected with this blight. I attribute this healthy state to their being shaded almost entirely from the sun, except in the height of summer. They grow almost beneath the boughs of fir-trees, yet they flourish and bloom more richly than those in sunny situations; and, therefore, from my own experience, I recommend ladies to alter the situation of those plants that suffer from this disease, and place them in colder stations. Their shoots should be cut off constantly, to prevent their rambling, and becoming weak; and by keeping them back in this manner they thicken in their growth, the flowers are larger,

and more abundant, and their effect in the blooming season consequently increased. The perfume is delicious, particularly when the dew falls; and for the period of a month or rather more, they are in full beauty. I do not think anything can exceed the loveliness of their rich, waving wreaths of golden blossoms, except their aromatic fragrance. Roses even, do not scent the air like honeysuckles; and I have stood beneath their boughs in the cool of the evening, and almost fancied myself in "the balmy East."

There is a late flowering variety which blooms after the others have departed; the flowers are even richer in size and colour, but they are not so sweet. With a little management, we may, therefore, have a succession of these ornamental creepers. They should be placed in every vacant spot, round every tree, and against every wall and fence. No bower is complete without them, and every porch should be clothed with them. Cuttings root well from October to March. Take the strongest of the last year's shoots, and divide them into cuttings from eight to fifteen inches long; place them in a shady border, about a foot asunder, and plant each cutting two-thirds of its length beneath the soil. By the next autumn or winter they will be ready for transplanting. They will increase also by layers, made in autumn, winter, or spring. They must be the previous summer's shoots, and their tops should be nipped off when laid in the ground. They will also be well rooted by the following autumn, and should then be taken off and planted elsewhere. I recommend every lady and every

cottage to cultivate these sweet flowers abundantly, for they will flourish anywhere—in shady places, and under trees, where little else will grow; and they need little culture, except to shorten the luxuriant shoots, and keep them in some order. The cottage garden is usually surrounded by a hedge, frequently neglected, or merely clipped coarsely, to prevent its growing thin. It is too often an unsightly kind of boundary, when it might be one of great natural beauty, both to the garden and the road. Plant a few honeysuckles here and there; some of the wild graceful clematis also, and the appearance will change completely; in the spring it will glow with spicy blossoms, and through much of the summer too, and in the autumn be mantled with soft, feathery flowers, twining themselves round every bush and bough. I have seen the rugged banks and hedges covered with this elegant wild climber; and nothing can be prettier. How graciously does the hand of God adorn and beautify this ball of earth for man's enjoyment! The very lanes are gardens in themselves, and tell of that boundless love that gratifies every sense He gives His creatures. What language there is in every leaf, and flower, and moss! Even the bramble, with its graceful sprays, and grape-like clusters, speaks to the passer-by; so does the thorn. They bid him look to the fruit he bears: "For every tree that beareth not good fruit, shall be hewn down, and cast into the fire." A solemn, salutary truth is this to the careless mind. If we will "hearken," we may learn much in a morning walk!

TO CORRESPONDENTS.

PEAR TREES FOR A SOUTH-EAST ASPECT (*W. Taylor, Highfield, Edgebaston*).—Your situation is well adapted for the Winter Nellis, the richest and most melting pear in the kingdom. It has, moreover, the merit of continuing in use from the second week in November until the beginning of January. The *Beurre d'Arenberg* would be as eligible in point of situation, and a much larger pear, but not quite so rich. Did we possess such a gable, and that only, in a town, we would graft many sorts on one. Do not plant until February. Watch our columns, we will soon show how this should be carried out.

PRUNING STANDARD ROSES (*R. C. S., Cheltenham*).—Roses may be pruned from December to March; but the best time is as soon as all the leaves have fallen, if the wood is ripe. If the rose is pruned too early in the autumn, and the weather keeps open and mild, its buds may break, that is, burst into leaf before winter. You may prune in December, for if the pruning is deferred till spring, much sap is wasted on the buds which have then to be cut off. We except climbing roses, which ought not to be pruned until the end of February or early in March.

CORRESPONDENCE (*M. Saut*).—We prefer all letters being addressed to our Office, 147, Strand, London.

VINE PLANTING (*J. L., St. John's Wood-terrace*).—Directions relative to this will appear in our "Fruit-garden" department.

CELERY (*W. Ward*).—We are informed that Mr. Nutt, of Sheffield, will not sell celery seed, but that he will sell the plants in the spring.

ADVICE (*A. Y. Z.*).—We are very much obliged by your suggestions,—some we shall at once adopt, and all will be duly considered.

W. L. S. D.—The two first pages of *THE COTTAGE GARDENER* are intended to be cut off when it is bound. The binder will have no difficulty if it is left to him.

SALT AS A MANURE (*A Subscriber*).—At p. 53 it should be "One peck to each half rood, or one-eighth of an acre."

HARDY ANNUALS (*W. X.*).—We will give a list.

HYACINTHS (*M. Wilkinson*).—The moss in which these are grown need not be pressed down tightly; it must be kept gently moist.

ASPARAGUS BEDS (*Mr. Godfrey*).—The time for making and planting these is early in the spring; we shall then give full directions. The best variety is the giant asparagus.

DISSOLVED BONES (*F. J. Williams*).—The sulphuric acid is combined with the calcareous matter of the bones, so that it will not injure either your plants or bulbs.

CAVE JASMINES (*Ibid.*).—The best treatment is to grow them in a soil composed of one-third turfy peat, one-third leaf-mould, and one-third decayed cow-dung; in March plunge in a bottom-heat of 80 degrees; temperature of air 70 degrees, and kept very moist. Pot in 12-inch pots before plunging them as above. Water with water as warm as the air they are growing in, and give liquid manure as soon as the blossom-buds are fully formed.

S. SHILDS.—We will give you answers to all your queries, and probably in our next.

SEEDLING ORANGE-TREES (*Ibid.*).—No treatment will make these grow very fast. The best mode of advancing them is to keep them in a warm greenhouse and supplied liberally with liquid manure.

POLMAISE-HEATING (*G. Exeter*).—We do not know any one near you who has adopted this mode of heating. It has failed in the Church of St. Thomas, Winchester, though erected under the personal direction of Mr. Meek, its great advocate. Mr. Fortune, after due inquiry and consideration, declined employing it in the Chelsea gardens.

SEEDSMEN (*Clericus, Cookham*).—We really cannot recommend seedsmen even in the mode you name. If you require a new flower, any first-rate florist will get it for you; if you require a new seed, any first-rate seedsmen will supply you—for if they have not any, they will procure it. Seymour's White and Red Solid Celery can be obtained from most, if not from every seedsmen. Julys and Red-nosed Kidney Potatoes of the salesmen in Covent-garden Market,—those varieties abound in Hampshire. Torenas Asiatic is not yet generally to be had. Super-phosphate of lime of the London Manure Company, Bridge-street, Blackfriars. Thanks for all your hints: we will do our best to be useful.

SLUGS (*E. E.*).—Do not mix lime and stable-dung together; the lime will drive off the ammonia of the latter. Digging lime into the soil will not destroy slugs. The best mode of keeping them under is to sprinkle sometimes lime, and sometimes common salt over the surface of the beds during the evening when the slugs are out in the spring and summer. This, with frequent hoeing, will keep them under. They may be trapped also as directed by Mr. Barnes in a former Number.

MELONS IN OPEN AIR (*Zeta*).—Mr. Williams's direction is given in our seventh Number.

BEES (*A. W.*).—Can you not buy them of some cottager near you? Mr. Neighbour, Holborn, London, can probably supply you.

SUCCESSION OF FLOWERS (*A constant Subscriber, Stoke Newington*).—You will find a couple of flowering Calla Ethiopica mentioned in to-day's "Greenhouse and Window-gardening," and a couple of red flowering Camellias, for contrast, will suit the centre of your four stands,—hyacinths, narcissus, early tulips, Chinese primroses, cinerarias, or any dwarf plants to surround them. Indeed your stands may be kept as full, if not quite as gay, in winter as in summer, by looking occasionally round the nurseries, to see for yourself what kind of plants you would like. Nurserymen now-a-days force all spring-flowering plants for sale.

FOWLS' DUNG (*J. T. C.*).—This is one of the richest of manures. Save it until the spring, keeping it dry and cool, and then dig it into the soil just before planting any crops you may wish to be very luxuriant. It is most excellent for spring-dressing strawberries.

VEGETABLE MANURE (*Mr. Phelps*).—Take the seed out of the fruit now, and convert its flesh into soup, as directed in our fifth Number. Dry the seed well, and store in a dry place. Sow the pumpkin seed an inch and a half deep.

WEEKLY CALENDAR.

M D	W D	DECEMBER 7—13, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
7	TH	Pintailed Duck arrives. [flocks.	Hairy Malvaviscus.	54 a 7	50 a 3	3 21	12	8 8	342
8	F	Conception B.V.M. Skylarks in	Arbor Vitæ.	55	49	4 41	13	7 42	343
9	S	Laughing Goose arrives.	Larch.	56	49	5 59	14	7 15	344
10	SUN	2 SUNDAY IN ADVENT.	Cedar of Goa.	58	49	rises.	☺	6 47	345
11	M	Gross-beak sometimes seen.	Aleppo Pine.	59	49	5 a.31	16	6 20	346
12	TU	Black-throated Diver arrives.	Crowded-flow'r'd Heath.	VIII	49	6 38	17	5 52	347
13	W	Lucy. Red-throated Diver arrives	African Arbor Vitæ.	0	49	7 49	18	5 23	348

CONCEPTION OF THE VIRGIN MARY.—This festival was instituted by Anselm, Archbishop of Canterbury, in the eleventh century, in gratitude for the preservation of the fleet of William the Conqueror during a violent storm.

LOCY, a wealthy virgin of Syracuse, who embraced Christianity, and distributed her property among the poorer brethren of the same creed. Being accused before a heathen judge, he condemned her to death, and she was martyred on this day in the year 305.

PHENOMENA OF THE SEASON.—We have now, says a popular writer, a full sense of the loss we sustain in the departure of the summer birds, for we feel the absence of the cheerfulness which those wanderers communicate to our woods and gardens. Among the few remaining, we see the tom-tits pendent from the mossy limbs of some tree, seeking, active though silent, their insect food,

uttering at long intervals a note low and feeble, making us the more sensible of the surrounding stillness. The nut-batch hammering on some distant tree, and the harsh screech of the jay, more loudly disturb the remarkable stillness of Nature so characteristic of this period. The redbreast, who forsook us all the summer long, now joins us in our rambles, fitting before our steps like some ministering attendant, coming from we know not where, yet ever present, voiceless, and watchful. The insect myriads which peopled every woodland are almost all departed, yet many are secretly at work, and among them are those small beetles who form such curious little winding channels in the form of a leaf, or a regular trained espalier-tree, which we see on the surface of elm palings, or on the ashen bar of a stile. These channels, or labyrinths, are formed by the grubs of beetles, of the kind of which the following cut is an example magnified, its natural length being no more than that of the line beneath it.

INSECTS.—This is the Ash-destroying beetle (*Hylesinus Fraxini*). It is no more than two lines



DECEN.	1841.	1842.	1843.	1844.	1845.	1846.	1847.
7	Showery.	Fine.	Cloudy.	Frosty.	Fine.	Finc.	Rain.
Highest & lowest temp.	50°—47°	39°—33°	55°—47°	34°—26°	47°—19°	42°—33°	53°—31°
8	Showery.	Fine.	Fine.	Frosty.	Frosty.	Fine.	Fine.
	54°—33°	37°—31°	58°—30°	32°—26°	50°—41°	42°—34°	43°—28°
9	Fine.	Fine.	Cloudy.	Frosty.	Fine.	Cloudy.	Showery.
	44°—38°	43°—36°	44°—34°	32°—23°	48°—29°	43°—33°	57°—51°
10	Cloudy.	Cloudy.	Fine.	Frosty.	Fine.	Rain.	Rain.
	55°—36°	39°—38°	49°—36°	32°—28°	53°—29°	44°—24°	55°—40°
11	Cloudy.	Fine.	Fine.	Cloudy.	Fine.	Frosty.	Fine.
	47°—37°	43°—38°	50°—28°	30°—22°	51°—34°	44°—19°	53°—20°
12	Rain.	Rain.	Cloudy.	Cloudy.	Fine.	Frosty.	Fine.
	52°—47°	57°—50°	50°—28°	31°—24°	43°—23°	34°—24°	53°—38°
13	Showery.	Fine.	Cloudy.	Frosty.	Frosty.	Frosty.	Fine.
	52°—40°	61°—42°	48°—31°	32°—25°	36°—25°	30°—11°	53°—35°

long, and half a line broad. The head and throat black and shining, the horns brown, ending in a small oval knob, pointed at the end; the wing-cases very dark brown, marked with minute lines and dots. The grub, or larva, is yellowish white, with a large head and dark-coloured mouth. There is a peculiar swelling between its head and throat. They are now at work, eating their secret passages in the inner bark of the ash. There are other species, and though their ravages are not known to be very injurious in this country, yet in Germany, among the elms in the islands of the Danube, great destruction is occasioned by the elm-destroying Scolytus (*Hylesinus scolytus*). This, we believe, is more injurious even in this country than is usually estimated. Some of the elms in the avenue at Southampton, we think, have died partly from the attack of this insect.

In previous Numbers we have directed attention to several cheap manures, such as the house sewage, bones, charred rubbish, salt, etc.; and we would now claim from our readers a due regard for the refuse they may obtain, almost for carrying away, at the Gasworks. That refuse is of two very different kinds—gas-lime and ammoniacal liquor,—both valuable, but the latter by very far the most valuable as a manure. We shall confine our observations to-day to the gas-lime, and we would premise that a substance may be productive of benefit to plants in many ways besides being taken in by their roots, and thus actually becoming their food. Being fit for their food, entering into their very composition, is, of course, a most important characteristic of a manure; but there are many other qualities only just a little less beneficial to a plant, when those qualities are possessed by a manure

applied to it. For example, the manure may attract moisture from the air, and thus in dry weather gather into the soil more moisture than it would otherwise have for the supply of the roots of the plants growing upon it. Now, gas-lime (hydro-sulphuret of lime) attracts moisture from the air, for if dried by exposure to the fire, and then left in a cold outhouse for twenty-four hours, it will be found to be quite clammy. Then again, a manure may benefit plants by destroying or driving away insects and other vermin that are apt to injure their leaves or roots. Now this quality is also possessed by gas-lime, for it is so acrid that it destroys every slug and wire-worm with which it comes in contact; and is so offensive in its smell, or rather stench, that it puts to flight the turnip-beetle, if used as a slight top-dressing where turnips have been just previously sown.

Gas-lime is formed in the purifiers of the gas-works, by passing the gas through caustic lime; the latter attracting from and combining with the sulphuretted hydrogen with which the gas is contaminated. But, besides sulphuretted hydrogen, it also contains a little ammonia and sulphurous acid; so that the refuse sold to the cultivator of the soil is a mixture of hydro-sulphuret of lime, sulphate of lime, and carbonate of ammonia.

Lime in some form exists in all plants. Wheat, barley, oats, turnips, potatoes, cabbages, peas, beans, etc., contain it in considerable quantity. Now plants can only imbibe it by their roots in a state of solution, yet in the soil it is only found, unless added by means of manure, as chalk (carbonate of lime), which is insoluble. Therefore, a manure which will present lime to the roots of plants in a soluble form must be beneficial; and such a manure is gas lime, for this hydro-sulphuret of lime dissolves in water. That plants have the power of decomposing it, retaining the lime and other constituents which they require, and emitting those which are unnecessary, is rendered clear by the experiments of M. Vogel and others.

Sulphuret of lime, by exposure to the atmosphere, is speedily converted into gypsum (sulphate of lime), so well known to the cultivator as useful when applied as a manure to the grasses, clover, turnips, and potatoes, and which it benefits by being actually one of their components.

Carbonate of ammonia, the other substance found in gas lime, is a highly beneficial application to plants; but, as it forms the principal ingredient in the ammoniacal liquor of the gas-works, it will be considered more in detail hereafter. From these facts it is very evident that gas-lime is compounded of matters well known to be beneficial to our crops, and practice has been found to justify the conclusion that it is a good manure. Thus Mr. Handley, one of our best practical agriculturists, observes, that

"In many parts of the country where gas-works are established, the refuse has become an object of interest to the farmer, as containing many of the essentials of the most effective manures. The refuse lime, which was formerly an inconvenience to the manufacturers, and was carted away as valueless rubbish, is now contracted for by the neighbouring farmers (in an instance within my own knowledge at 7s. 6d. per chaldron), and applied either in compost or in a direct form to the land, where, in addition to the usual operation of lime, it is said to furnish a protection against many of the noxious grubs and insects."—*Journal of English Agricultural Society*, i. 46.

This last suggestion has since been demonstrated to be most valuably true. A top-dressing of fresh gas-lime, about 20 bushels per acre, mixed with about 160 bushels of earth or chalk, applied the day after the turnips are sown, drives away the *turnip-fly* by its disgusting fumes; and when trenched into the ground on which the *carrot* and *onion* crops are to

be sown, it has been found to banish from them the grub and maggot, to whose attacks they are liable.

Mr. Morton, manager of Lord Ducie's experimental farm, recommends gas-lime to be mixed with fresh earth or decomposing vegetable matters, for the formation of a compost.—*Agricultural Gazette*, 1844 (p. 30).

Gas-lime, like many other really good manures, as is justly observed by Dr. Lindley, is injurious if applied to the surface-soil in large quantities, or unweakened, by mixture with earth or other compost. The proportions should be about eight bushels of earth or compost to one bushel of gas-lime, and may then be drilled or harrowed in with the seed. On grass, thus mixed, Dr. Lindley says he has seen it produce excellent effects; and even when it has been applied unadvisedly in such quantities as to destroy the blade of the grass, yet, after rains and exposure to the weather had diminished its power, the grass revived with very marked increase of luxuriance and verdure.

A farmer, writing in the *Gardeners' Chronicle* for 1843, says—

"Gas-lime, *not sufficiently mixed with earth*, does not do as a top-dressing for wheat or tares; it answers best for the bottom of muck-heaps, mixed with about ten times its own bulk of earth, and turned over twice before the muck is put on. *It certainly drives away the wire-worm*, and kills the seeds (of weeds) in the earth. I have now used it for carrots and barley, both of which look well."

The Editor of the *Carlou Sentinel*, writing from his own experience in the November just past, says—

"The plan tried with great success in this town and neighbourhood, especially in land where from the wire-worm and other causes carrots and parsnips were never grown beyond their early stages, is this—

"The gas-lime was sprinkled, not thickly, over the plot to be cultivated, taking due care that every part received a portion of that thin sprinkling; over this coating of lime spread the manure to the extent required immediately, and without further exposure to the air; dig both, so amalgamated, into the soil, turning it completely up; let the plots so cultivated rest for about five days; after this, form the beds, if for parsnips, carrots, or any other crop; and before the seed is sown the vermin are destroyed effectually, as the surface of the land frequently exhibits. By this simple process we have known land which for years never produced a carrot, grow them of enormous magnitude, and the ground completely freed from vermin.

"We firmly believe, from experience of the past year, upon a quarter of an acre of land, that potato ground so treated, if it be not too richly manured, will resist the progress of the potato disease, whether arising from atmospheric influences or other causes, if planted early. We draw this conclusion from the fact, that in the part planted without the gas-lime, the potato was, to a certain extent, *diseased*. On the contrary, where the lime was put into the good ground in autumn, the potatoes were every one perfectly sound, although receiving only equal care and attention; and we affirm that the same seed was productive and sound in the *one soil*, which was *diseased* in the other. We may observe that the seed was planted on the 23rd of February, 1848, and that the one was *sound*, while the other was *unsound*."

THE FRUIT-GARDEN.

ECONOMY OF SPACE IN SMALL GARDENS (*continued*).—It will be remembered that we offered some observations on this head in THE COTTAGE GARDENER of November 9th, our remarks then being chiefly confined to "slopes." We now proceed farther with this subject, and propose to offer advice on the following heads; viz.—1st, how fruit-trees should be arranged; and, 2ndly, where the bush-fruit should be planted.

We think that, for the ordinary dwarf standard fruit-tree, no better place can be selected than the marginal borders, whether as to neatness of appearance, or economy of space. Such trees, or rather huge bushes, in the interior of the garden, are totally incompatible with all success in vegetable cropping; they prevent both the free access of light and a proper circulation of air. We would even on most occasions, especially where the garden does not exceed half an acre, refrain from introducing any along the sides of a central walk.

The principal walks round small gardens, therefore, as before advised, should be next the hedge or other boundary, for the reason given in the Number for November 9th. If it becomes expedient to introduce a central walk, we would advise the cottager to plant gooseberry and currant bushes along its sides. In the case of the amateur such a walk will sometimes be required to add to the ornamental or decorative department, when the bush-fruit may be in part or wholly dispensed with; and tree-roses, dahlias, and hollyhocks, may form a back-ground for the dressy annuals, or half-hardy flowers, together with a sprinkling of some of our best herbaceous plants, as phloxes, larkspurs, peonies, gentians, primroses, auriculas, polyanthus, and various others.

DWARF STANDARDS.—The first point is their distance from the hedge or other boundary. There should be as much as five feet allowed, provided the boundary be a hedge; and if a wall, or dead fence, four feet, or even three will suffice. However, another consideration arises, as to whether hedge-row fruit-trees are introduced. If such be the case, six feet will be none too much; and the trees in the hedge-row must be so placed, as to form a triangle with the two opposite dwarf standards in the marginal border. They must by no means be opposite, or all will become confusion; and the consequence will be, that some of the trees will in the end require to be destroyed before they are worn out.

It must be borne in mind that this walk will not be idle: it will in due time be completely filled beneath with the roots of the fruit-trees and of the hedge. The fruit-tree roots will here, at least, be safe from their great enemy—the spade. We would in all cases plant some gooseberry bushes between the dwarf standard fruit-trees; and, in such case, a little more room must be allowed for the fruit-trees. Gooseberries are very liable to suffer from spring frosts when in blossom, and we have many times known a crop saved in such situations, when those fully exposed to the atmosphere were destroyed. The overhanging boughs of the dwarf standards proved a protection to the bushes; and although the fruit is not quite so firm, yet, if bushes are not introduced, the ground would be idle, for no vegetable cropping that requires spade culture should be allowed. Gardening, according to these ideas, may be divided into two parts, which may be termed distinctly vegetable culture, and fruit-tree culture: the first needing good spade cultivation, and the last an almost total absence of the spade. The bushes,

therefore, chime in with the same treatment as to root-management as the fruit-trees. From 10 to 12 feet apart may be allowed for the fruit-trees: the gooseberry-bushes of course in the centre, between each two.

We come now to the remainder of the bush-fruit; such as red and white currants, raspberries, and the black-currant; the latter, perhaps, the most profitable fruit the cottager can grow, *provided the soil is suitable*.

GOOSEBERRY AND CURRANT-BUSHES.—We before spoke of using the borders of a central walk—if there must be one—for some of these bushes. It so happens, however, that very frequently the garden is not quite square. When such is the case it is good policy to endeavour to form a square out of it, for the sake of facility of cropping,—a matter where spade culture by line is observed of no small moment in the end. In such cases, then, the surplus angles, or pieces, may be given up to the culture of the bush-fruit, together with such useful things as rhubarb, &c. If no such plots occur, there is no alternative but to set out a row or two of bush-fruit, side by side, with the established rows of fruit-trees; but herein some judgment must be exercised. None should be planted on the south side of the garden; for the trees would throw them into complete shade, and barrenness would be the result. The row of bushes will of course be on the vegetable-garden side; and if the north side of the garden be long, it would perhaps hold enough of itself, which would be a very desirable matter; for the east and west sides we would keep for beans or peas, especially the latter, which we would seldom place in the interior of the vegetable quarters: they always pod best when standing free, and running north and south, in which case they get the sun on both sides equally; the same may, indeed, be said of all vegetable cropping when in drills.

THE BLACK CURRANT and the RASPBERRY require a separate notice. It is well known that the gooseberry and the red currant will succeed in almost any soil with due culture: not so the black currant, which, *to thrive*, requires above all things a permanently moist soil. It will certainly *grow* and make a large bush in dry soils, by dint of manures; but if overtaken by drought, when the fruit is getting as large as small peas, this susceptible bush will assuredly cast the chief of its crop: after which, eased of its burden, the bush with the next shower will produce a strong growth; and thus they will proceed in such soils: continually flattering their owner by their free growth, and yet frequently disappointing him. As this is a most profitable crop to the cottager when rightly understood, we propose to recur to its culture; but now we must rest content to point to an eligible situation.

Many gardens contain a portion of soil inclining to a boggy nature; many, otherwise sandy, incline towards clay or loam at some point. These, of course, are the portions containing most moisture, and therefore most eligible for this fruit, and less so for vegetable culture. It is, indeed, a common practice in the north to plant the black currant close beside a ditch, down which run the soapsuds and other refuse of the cottage; and although we highly disapprove of the practice of letting such nutritious matters thus run waste, we must say that black currants enjoy such a situation.

The raspberry is also particularly partial to soil permanently moist. It will certainly not cast its fruit like the black currant, but in hot and dry soils the fruit will lose half its size. The raspberries, then, as forming a uniform system of root-culture with the black currant, we would place in alternate rows with

them; in which case the rows should be eight feet apart, or nearly so; the currants should be six feet apart in the row, and the raspberries about three feet. We will shortly return to the subject of planting fruit-trees, when we will endeavour to point to a ready, economical, and successful mode of making holes, or stations, for them generally.

DRAINING.—Although we have before suggested attention to this subject, we must again recur to the subject, which is, peculiarly, autumn work. Spring will arrive quite as soon as many are prepared for it, and will then scarcely offer a chance of bringing up arrears. In a future Number we will shew what general maxims are applicable to all soils, and what are of a special nature. In the meantime, those who are not prepared to proceed with a complete system adapted to the whole of a wet garden, should try their hand at a "preventive drain;" that is to say, a deep drain, so placed, at the highest end of the plot of ground, as to intercept the waters which come from higher grounds. This judiciously carried out will frequently supersede all other drains in small enclosures. Materials for draining may in the meantime be procured. The character of these depends entirely on the neighbourhood. In some places stone may be obtained, in others gravel, and in some the scoriæ, or the huge clinkers from factories. It matters not what material, so that it be of an imperishable character. Nothing excels the ordinary draining tile; if the cottager, however, cannot always avail himself of these.

MULCHING TREES.—We beg to remind those who have recently planted choice kinds of fruit-trees, of the great importance of what is termed mulching them; that is to say, covering the soil over their roots with half-rotten manure, or other porous material; this serves as a regulator, or controller, of sudden vicissitudes in the atmosphere, and a guard against extreme low temperature on the one hand, and severe droughts, or drying winds, on the other. It moreover retains the ground-heat much longer, and consequently facilitates speedy rooting. By such precautions a whole twelvemonth may be gained over a neglected tree.

Let no time be lost in carrying on pruning, excepting with the peach, the nectarine, the apricot, and the fig; the latter should have the shoots protected forthwith.

EXHAUSTED TREES.—This is the period at which to carry out the maxims explained in the Number for November 16th, by applying heavy top-dressings of manure, slutch, &c., as therein recommended for the old apple-trees. The same practice is suitable to *all fruit-trees*; and in limited gardens, or where an objection is raised to the unsightliness of such matters, the dressing may be removed in the end of March, and dug in for spring crops. The manure reserved for spring cropping would thus be much better employed, than in lying in badly managed manure-holes to fatten the neighbouring ditch.

CHARRED MATERIALS.—All surplus, coarse vegetable matter, including useless spray or brushwood, should now be charred and housed for general gardening purposes in the ensuing year. As soon as we have room we will describe the best method of doing so.

We would also direct attention to the cottager's compost heaps; the spouts of his building, if out of repair, too frequently rob his manure heap of its most precious properties. The past autumn has been a wet one, and many a dung-heap has, no doubt, run to waste. When a surplus of manure-water thus comes to hand, it can seldom be wrong to apply it between the rows of cabbages or other greens.

R. ERRINGTON.

THE FLOWER-GARDEN.

FERNERY.—There is a class of plants which, though they do not produce much floral beauty, are yet exceedingly interesting, and well worthy of cultivation; we mean the hardy ferns. It may be asked—Why are they worthy of that trouble? We answer—because they will grow where few plants else will. Their beautiful foliage is different from, and more elegant than, the foliage of any other tribe of plants. If they are placed in proper situations they are easily cultivated; also, excepting some of the rarer kinds, they are easily procured. Some of the most beautiful grow abundantly in almost every locality, at least at a short distance from large towns. We do not envy the feelings of that mortal who cannot see any beauty in ferns, who can pass by them without stopping to admire the elegance of their form, the freshness of their green, and their peculiar fitness for certain situations in which they grow. Admiring those lovely plants as we do, we shall this week give our readers our ideas and experience on the culture they require. We will consider, first, the various situations in which they grow naturally, for, if ignorant of this, the cultivator may commit great, and, in some cases, fatal mistakes. If a fern in its natural home luxuriates in the crevices of an old wall, it would manifestly be wrong to plant it in a moist, shady place. Again, if a fern flourishes in warm, moist woods, it would be equally wrong to place it upon rockwork exposed to the burning sun of July. The only *Adiantum*, or True Maiden Hair, that grows wild in this country, is found on moist rocks, while the *Allosurus Crispus*, or Parsley-fern, is found in high, dry, rocky places.

The common *Polypody* grows on dry hedge-banks, on stumps of decayed trees, and on half-buried rocks; but the *Polypodium Phegopteris*, or Beech-fern, loves the rock moistened continually by waterfalls. The *Lastrea Thelypteris*, or Marsh-fern, inhabits, as its name imports, wet, boggy places, whilst the *Lastrea Rigida*, or Rigid-fern, grows on high limestone rocks; *Asplenium Marinum*, or Sea Spleenwort, is found only on sea cliffs; *Asplenium Trichomanes*, or Maiden-hair Spleenwort, exists and flourishes on old brick-walls. The Hart's-tongue-fern (*Scolopendrium vulgare*) has its native home in dry hedge-rows, or dry, open plantations; whilst the noble *Osmunda Regalis*, or Royal-fern, sends forth its magnificent fronds* from its habitation on the open boggy heath. These examples might be multiplied, but the above are sufficient to shew that some care and knowledge of such facts are necessary to ensure success in the cultivation of those beautiful plants.

In order, then, to guide the tyro or young beginner to grow ferns, we shall, in the next place, endeavour to describe such a fernery as will be suitable for the greater number of those admirable plants. We have, in a Number or two back, directed the attention of our readers to the cultivation of Alpine flowering plants. A somewhat similar mode will suit ferns, with this difference, that provision must be made for such species of fern as grow in low, shady, moist places. The form of bank should be half-circular, about the shape of a horse-shoe, the two points of which should face the south. A gravel walk should be made round the whole, and across the space inclosed within the bend. This space is intended to plant such ferns in as require moisture and shade. If convenient, a small tank, or basin of water, would be desirable. This water may have an irregular outline

* Frond—the name applied to the branches of the fern; those branches being a peculiar compound of leaf, leaf-stalk, and branch.

of rockwork, and outside that a bed of peat earth, to be edged, like the walk, with such rough pieces of stones, flints, or furnace-clinkers, as may be conveniently procured. The bank may be made with any kind of earth at hand. It should be formed in steps, and the upright edges built with rockwork, in the interstices of which those species of fern that grow naturally on walls will find a suitable habitation. The space between the rockwork, which we have denominated steps, is intended to receive such species as grow in hedge-rows, or open glades. The lowest step may be planted with such species as require moisture, but not so much shade. The inside of the bank may be formed into rockwork with rough stones, stumps of old trees, &c., to receive such ferns as grow on moist shaded rocks. As soon as we can find room for it, we shall give a list of ferns, with the different aspects they require.

SITUATION OF THE FERNERY.—In small gardens, in the suburbs of towns, the habitation for those plants should be in some retired part, the south side of it, to be shaded either with a north wall or shrubbery. Several species of fern will grow well in shady plantations, without any further care than planting them, and occasionally stirring the ground around them, and clearing away anything likely to smother or otherwise injure them. They may also be successfully cultivated in pots, of which method more anon.

In gardens of large extent, the situation of the fernery should be in some retired place, with a dense shrubbery or plantation to the north of it. An arbour made of rustic materials might either be formed in the bank of ferns itself, or be placed in the plantation to face the rockwork, so as to have a view of it. Those who will be at the trouble and expense to form such a scene will not only be delighted with the effect themselves, but will find it give great pleasure to all their friends and visitors.

GRASS-PLOTS—Most gardens have more or less of a lawn in them. The grass ought now to be closely mown, well swept, and rolled frequently. Should any places be bare of grass, it is now a good time to relay it, if suitable turf can be procured. Let all the edges be neatly cut, and the cuttings put into some place to decay. This makes excellent compost for potting.

BULBOUS IRISES.—These are singularly beautiful plants. They are commonly known as the Spanish Iris (*Iris Xiphoides*). The price of them is moderate. A bed of four or five rows, about 12 feet long, at six inches apart every way, will hold a good collection. They may also be planted in clumps of four or five each, amongst other flowers.

SOIL.—Any good sound garden-mould, enriched with some well-decayed dung dug deep into the earth, will grow them finely. As they are perfectly hardy, no protection is necessary. The only attentions they require are frequently stirring the surface, keeping them clear from weeds, snails, and other vermin, and to have sticks 18 inches high put in as soon as the flower-stems appear, tying them loosely to these from time to time until the flowers are open. The colours of these flowers are as various as the hues of the rainbow.

COTTAGER'S FLOWER-GARDEN: EVERGREENS.—As during winter a garden without evergreen shrubs is exceedingly blank and dreary, we hope our cottage friends will try to procure a few of those winter-cheering plants. One or two common laurels, with a Portugal laurel, a bay-tree, three or four laurustinuses, which flower at this season; an aucuba, with its beautifully-spotted leaves; an arbutus, or strawberry-tree, with its red, strawberry-like fruit;

and a pyracantha, or evergreen-thorn, with its scarlet berries, against the walls of the cottage or any out-building, make all look smiling. Also, let our cottage friends find room for a bush of rosemary, the herb of remembrance: it is beautiful as well as useful (see p. 15).

SWEET-BRIER.—The cottager can scarcely have too many of this fragrant shrub; and as the fruit, commonly called hips, are now ripe, let a few be gathered. Break them in pieces, so as to separate the seeds; then mix them with sand, and put them in a vessel (a garden-pot will answer), and keep them in a cool place till next March. In that month sow them thinly in rows, in some narrow, convenient border, and transplant the seedlings, after one year's growth, into the places where they are to remain. They grow best at that age.

Let us remind our amateur and cottage readers of the constant and necessary attention all kinds of plants in pits and frames require now. Look for dead or decaying leaves every day or two, and instantly remove them. Water, when absolutely necessary, early in the forenoon, with water that does not feel of a freezing coldness. Cover up securely from frost, and on all fine days give plenty of air. If the sun shines, and there is no frost, pull the lights, straw mats, &c., quite off; but cover up again instantly should rain or snow begin to fall. By these proper and necessary precautions, the plants will acquire the power to endure a long privation of heat and light during the dark, snowy, stormy weather we may calculate upon in January and February.

FLORISTS' FLOWERS.

AURICULAS and **POLYANTHUSES**, during the dark, damp months, will require constant care to keep them fresh and healthy. They should have air on all fair days by drawing off the glass-lights, and on rainy days by tilting them up behind. To these plants decaying leaves are as bad as the cholera, if not timely removed. The surface of the soil in the pots should be clear of moss and appear dry. No green mould should be allowed to appear on the outside of the pots. The pots ought to stand either on a proper stage of boards, standing upon a paved surface, or upon coal ashes, frequently renewed, in a dry state. Every morning, when the frames are opened, look for snail tracks,—the slime they leave will betray them. Do not leave them till their retreat is found, and then destroy them.

ROSES, for growing in pots, for exhibition, or other purposes, should now be placed in a cold frame or pit. The list below requires no protection, and are all excellent kinds for blooming in pots. They are the sorts that were exhibited in such fine perfection at the different shows at Chiswick and the Regent's Park during the last season. The soil they do best in is a good loam, formed of rotten turf, with a free mixture of well-rotted hotbed dung or two years' old cow-dung. Let the pots be well drained, of a size suitable to the plants. They will be one year in the pots before they flower profusely. The growing of roses in pots is very desirable, independently of exhibition purposes, they being very ornamental for the greenhouse, the parlour window, or the terrace walk.

List of forty kinds of roses, suitable for growing in pots, that may be preserved through winter in a cold frame:

Moss.—Celine; rich crimson. Alba la Sediurant; rosy blush.

GALLICA (French Roses).—Boule de Nanteuil; crimson, rosy purple.

HYBRID PROVENCE.—Princess Clementine; paper white.

HYBRID CHINA.—Beauty of Billiard; vivid scarlet. Belle Maria; superb rose. Chenedolle; light rich crimson. Coup de Hebe; rich dark pink. William Jesse; purplish crimson.

AUSTRIAN.—Persian Yellow; deep yellow.

DAMASK PERPETUAL.—Mogadore; purplish rose.

HYBRID PERPETUALS.—Auberon; bright rose. Baronne Prevost; pale rose. Clementine Seringe; flesh rose. Docteur Marx; carmine. Duchess of Sutherland; pale rose. La Reine; rosy pink. Lady Alice Peel; deep rosy carmine. Louis Buonaparte; vermilion. Madame Laffay; rosy crimson. Madame Verdier; pink flesh. Mrs. Elliott; rosy purple.

BOURBONS.—Armosa; fine bright pink. George Cuvier; bright rose. Madame Ruychin; rich cream. Madame Nerard; lively blush. Paul Joseph; dark velvety crimson. Queen; buff rose. Souvenir de Malmaison; clear flesh.

NOISSETTES.—Aimée Vibert; pure white. Clara Wendee; pale yellow.

CHINA.—Abbé Miolana; rosy purple. Cramoise superieure; rich velvety crimson. Eugene Beauharnois; amaranth. Madame Breon; beautiful rich rose. Madame Beureau; pure white. Mrs. Bosanquet; delicate pale flesh.

TEA-SCENTED.—Comte de Paris; flesh colour. Niphotos; ditto, very fine. Viscomtesse de Cazes; pale yellow, orange centre.

GREENHOUSE AND WINDOW GARDENING.

GREENHOUSE BULBS.—There are hardly any tribes of plants more easy to manage than the different half-hardy bulbs which may be grown in a small greenhouse: few are more interesting, few take up less room, and none are more beautiful and varied in their flowers. They are also of all sizes, from a few inches high, as some of the African iris tribe, up to a lofty stature of 12 or 15 feet, as the gigantic lilies of Nepal. Although these are really so very easy to manage, yet they have the reputation of being very troublesome; and for one question that a gardener is asked about other plants, he is sure to have three inquiries as to the proper management of Cape bulbs—"What treatment do you recommend for Cape bulbs? A friend sent me a box of them two or three years since, but I can do nothing with them; and now we expect him home, and I am so annoyed that I hardly know what to do or say about them." This is the substance of numerous questions put to myself; and I am persuaded that a general idea exists among those who have thus been disappointed, that greenhouse bulbs are, of all other plants, the most difficult and dangerous one can take in hand. If, therefore, I can explain this matter so as to remove part of this unfounded prejudice, I shall be doing at least some service. But, first of all, let me give the substance of my answers to all the inquiries about Cape bulbs newly imported. It may seem a paradox, after saying how easily these may be managed, to add that my answers invariably are, "Have nothing to do with these bulbs. The best advice that I can give you is to throw the box and its contents at once into the fire." The truth is, that African bulbs, imported as above, are seldom gathered by European travellers; they are bought at Cape Town from the seedsmen, who keep assortments of them ready in their warehouses to supply the demands of the English residents, or of others who may call at the Cape on their way home from India and other parts of the

world. Those bulbs are gathered at the worst season of the year, when they are in flower, as at that time the different sorts are more easily recognized, and less difficult to be taken up, for the ground then, it being the rainy season, is moist. We may form a better idea of the condition of bulbs thus treated, if we consider what would be the state of our own hyacinths or tulips, if taken up when in full flower, divested of their roots and leaves, dried and packed ready for exportation. The case is worse, however, with a large class of African bulbs, which belong to the iris or corn-flag tribe; most of these flower only once from the same bulb, which then dies, after producing others for succession. The renewal of these bulbs takes place only when the plants are growing; and when they are disturbed in that state, the chances are that the old bulb is too far spent to be of any use afterwards, while the young ones are not sufficiently ripened to be fit for removal, although to all appearance they may seem promising enough. Another set of Cape bulbs, belonging to the amaryllis tribe, are permanent, and flower from the same bulb for years in succession; but when these are taken up at the wrong season, they require several years of good management to bring them round again. Besides, they are always infested with insects of the mealy bug tribe, rendering it most dangerous to introduce them into our greenhouses; for if these creatures are once allowed to spread to other plants, there is no getting rid of them without enormous labour, if at all. But I think I have shewn sufficient reason for advising our readers to "have nothing to do with imported Cape bulbs." The safest plan, and the cheapest in the long run, is to procure your bulbs from those collections of them that have been cultivated at home for many years; among these there are many splendid ones, which have been originated here from cross-breeding, and which surpass in beauty and statelyness the best of the wild African sorts. They are also so prolific in seeds and offsets, that nurserymen are able to supply them cheaper than most other plants, and when once you possess any of them, there is little fear of your ever losing the breed again, as they multiply as fast as our native crocuses.

GLADIOLUS.—The first family of plants that I shall mention is the gladiolus, or corn-flag, of which there are many very beautiful sorts from Africa, as well as many handsome varieties raised in this country from seeds; but before I mention any of them more particularly, it may be as well to put you on your guard against a common provincial way some people have of pronouncing the word "gladiolus," by putting the accent, or stress, on the letter o, thus, "gladiólus," whereas the true way of uttering the same is as if written Glad-eye-lus, putting the accent on the i.

Gladiolus Cardinalis, or, as we may call it, the Cardinal corn-flag. This is the best known of all the old Cape sorts, and is remarkably showy, having bright scarlet flowers, dashed in the centre with white diamond spots. The flower-stems rising to two or three feet high. Every one who means to begin growing this class of bulbs, ought to get this one among the first, as it is one of the best to breed new ones from, and is already the parent and grandpapa of an endless variety of most beautiful flowers, some of the best of which I shall mention below.

Gladiolus Oppositiflorus (Opposite-flowered Corn-flag).—This is another well-known plant, a native of Madagascar, growing as tall as the first-named. The flowers are white, with a bright pink stripe in each division. I place these two together, because between them a beautiful race of strong-habited plants may be

raised. Formerly another white kind, called *Gladiolus Blandus* (Fair Corn-flag), was used to cross-breed with cardinals, but their offspring, though very beautiful, were not nearly so fine and large as those between these two. Witness one of the earliest crosses between those two called *ramosus*, or "the branching," which at once eclipsed the work of thirty years in crossing and recrossing the cardinal with the breed of *blandus*, "or the fair one;" this *ramosus* is much taller than either of its parents, and *their* colours are so beautifully blended together in it, that it is scarcely possible for words to describe them. All these flowers grow so much better in the light rich soil of the nursery gardens in Holland than with us, that this very plant, *ramosus*, was brought by our nurserymen from those of Haarlem, not longer ago than a dozen years, as quite a new plant, from the Cape of Good Hope, although it was first raised in England some years before! Now, any of my readers, with only the aid of a single window, may grow these plants to perfection; and I shall undertake to teach them how to raise new seedlings from them that will excel even *ramosus* in beauty, by the simple process of cross-breeding the plants when they are in flower. There is nothing connected with the rearing or management of flowers more exciting and interesting than this, or more likely to arrest your attention; I am, therefore, the more earnest to fix it on your mind. To be able to tell your friends that such and such flowers were first originated by your industry, aided by a little twopenny weekly gardening-book, is surely worth trying for; and then, when you have more of them than you have room for, to be able to give some away as presents, or exchange for others, is both pleasant and profitable. But, instead of this kind of speculation, perhaps you would like better to hear what other kinds of beautiful corn-flags I would recommend. If, therefore, you are so far in earnest, and mean to buy those I have mentioned, I must tell you that the white one with the beautiful pink stripes, called *Oppositiflorus*, is often sold in the seed shops under another name, the meaning of which being that it is an abundant flower, or *floribundus*; therefore that is the surest name by which to ask for it in the country, but in London either of the names will find it out. The next corn-flag I would recommend is fully as strong as the scarlet or white one, and also equally hard, but of a very different colour from either. I purposely mention it that you may have the most dissimilar colours which the corn-flag family affords. For, if you should be induced by my representation to try your hand at cross-breeding—a process that I shall have no difficulty in making you understand when they are in flower—it is *essential* to success that you should proceed with the best kinds, and those with the most varied colours; the Latin name of this one is *Gladiolus Natalensis* (Natal Corn-flag), the meaning of which is that it is a native of Natal, a place on the south-east coast of Africa, named by the Portuguese navigators, who first discovered it on Christmas-day (the natal or birth-day of our Saviour), in the year 1498. The Port Natal district now forms part of our Cape Colony, and not far from where Sir Henry Smith, "the hero of Aliwal," so gallantly put an end to the last Caffir war. Europeans in that country often send this beautiful plant to England by the name of "The Port Natal Lily;" it is also called *Gladiolus Psittacinus*, or the parrot-like corn-flag, in allusion to its beautiful colours, which are of a vermillion orange, spotted and feathered on the edges with dark scarlet or purple. Sir William Hooker says of it, "The colours are indeed splendid beyond

anything that can be expressed, except by the most elaborate miniature painting." Two out of the three species that I have mentioned, the Madagascar and Port Natal Plants, have the valuable property of not growing—above ground—till the spring, like the old European sorts; so, though they are best potted in the autumn, they may be stowed away anywhere during the winter when room is scarce. This quality of not growing in winter we must bear in mind when we come to rear seedlings between the different kinds, as it is now clearly ascertained that certain peculiarities in the parents, either of plants or animals, can be transmitted to their offspring. But not to detain you any longer on this subject, let us pass to that of their management in pots. All the sorts—for there are a great number of them—except the two that do not grow in winter, and those reared between them, should be potted about the end of September; but if you mean to try them now, it is not too late; and there are bushels of them yet in the London seed-shops. Indeed, I was offered any quantity the other day, of the Cardinal, at fourpence each, if I would take them by dozen or score; and the white one, with the Port Natal plant, at half the sum, or twopence each, that is, if I took a large quantity of them, and all of these would flower next summer. It will be time enough to pot the last two till March, but I would rather have them in sooner.

The pots must be particularly well drained. Put an oyster shell with the hollow side down over the hole, and a large handful or two of potsherds broken small over that; they like a light rich soil, and rather in a rough state, to let the water pass through more freely; one half light loam, the other half equal quantities of peat and leaf mould, with a little sprinkling of sand, is the *best* compost for them. They will grow, however, almost in any soil that is not too stiff and not sifted. Gardeners often plant a dozen of them in one large pot, and about two inches deep in the soil, and the effect of the whole when in flower is indeed most splendid.

As soon as the bulbs are potted they are watered and put away any where till their leaves are above ground, then they must have light; they are very fond of being near the glass, either in the window, pit, or greenhouse; and they are so hardy, that a close hot room would draw them up weak. They will stand a sharp frost if they are allowed plenty of air from the beginning; the best place of all for them, except in very frosty weather, would be to stand under a veranda all day, and to be taken in at night. When they are six inches high, they may have water twice or three times a week in mild weather; but if they are kept cool they do not want much water at a time.

HYACINTHS.—You may now see if the hyacinths and your other bulbs have made roots sufficient to support a steady growth. If the roots are beginning to coil round the ball, you may take some of them to the window of a warm room, and those for glasses may be removed also, as soon as their roots appear through the ball: if they are in pots, or if you put them all into a box of sandy soil, watch till the roots are three or four inches long, when they are fit to be put into the water-glass. For the first ten days after the glasses are brought into the room, put a covering of soft blotting paper, or moss, over the bulbs, as the sudden change from a cool moist situation to a dry warm room may prove too much for them. Indeed, I am certain that they would bloom finer if the bulbs were constantly enveloped in a little moss or wadding, and this covering damped every three or four days, but it must be done very neatly. D. BEATON.

THE KITCHEN-GARDEN.

COLEWORTS, or young newly-turned-in, or firm-hearted cabbages, should now be taken up carefully with the fork or spade, and laid in rows in some spare corner or piece of ground, very thickly placed together. This increases the convenience of protecting them when severe frost sets in; a little straw, peahaulm, fern, evergreen boughs, or other such article, which may be at command, are used to advantage in covering them, and thus securing a plentiful supply of young cabbages and greens throughout midwinter. The same plan may be adopted by those who have saved their summer cabbage-stumps for winter greens, laying them in deep and thickly together. Another advantage is, that the ground will be cleared for getting in manure on suitable occasions, and opportunity afforded to have it thoroughly trenched.

MUSHROOM BEDS out of doors should be protected with thatched hurdles, and a little addition made to the covering occasionally, and the damp short litter at all times kept clear from the bed. It may injure and weaken the spawn much, if allowed to remain adhering to the bed. The same direction as to protection holds good for all plants under shelter, which require covering.

MINT, TANSY, and TARRAGON, place in a hotbed of gentle heat; and PARSLEY in pots put into sheltered situations.

RADISHES.—A little short-top early-frame radish-seed may now be sown on a light friable soil, in a sheltered warm situation, and protected with straw or fern at night, but to be taken off during fine days.

SEA-KALE and RHUBARB.—A few successional roots of sea-kale and rhubarb should be taken up by those who have convenient room for placing them in warmth. Sea-kale roots placed in earth or sand in a cellar, mushroom-shed, or back shed, that are close and warm, and the light kept from the plants, may be produced very fine, and with little attendant trouble or expense. Of the early varieties of rhubarb, strong roots taken up now may be placed in any sheltered situation to forward their growth: such as a mushroom-shed, near the lightest part; back sheds, where heat escapes from hearth-furnaces; under greenhouse stages; inside of a boathouse of any kind, where that convenience is at hand; or a slight hotbed of leaves or fermenting materials of any kind may be made, and a frame and lights placed over it; and the roots being put on the bed covered with tan, leaf-mould, or any light soil. Those who intend planting this season either rhubarb or sea-kale, should select a good piece of soil, and manure and trench it well, and the oftener it is turned and forked over, the more healthy it will become for early spring planting, or the sowing of the seed of the sea-kale, which is preferred by some.

ROUTINE WORK.—All old hotbeds and old pit-linings should now be cleared away, taking advantage of dry or frosty mornings for wheeling this manure out upon the spare ground to be trenched. The drains should be examined and repaired if requisite, and other necessary repairs at once attended to. By those who have no other convenience for forcing early vegetables, &c., than by fermenting materials, slight hotbeds should be made in succession for early horn-carrots, short-top early frame radishes, and asparagus in succession. Leaves and litter of any kind should be collected together, and turned and mixed over well several times, to be in readiness for successional beds and linings. The season also is advancing for

selecting the stock of next season kitchen-garden seeds; we will, in a future number, give a list of well-proved useful articles. JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 8.)

THE cold stormy winds of winter have set in, and the glory of the woods has departed. Nothing now remains of the waving splendour of the trees except the crisp brown leaves of the beech and oak, which still cling to the boughs like grateful hearts, unwilling to forsake them. The larch plantations look cold and comfortless; the ground is strewn with leaves, some of so bright a yellow, that we seem to be stepping upon gold; and gusts blow them about in sport, as if to shew us what nothingness there is in their short-lived beauty. Yet even leaves have a work to do; in nature nothing is idle, nothing is made in vain. Man dares to waste his energies, his reasoning powers, his time and talents, and leaves too often the great business of his life undone; but every thing in nature does its duty well, and rejoices to fulfil the will of God. Leaves are of great importance to the life and health of the tree; through them the excess of moisture drawn into the trunk from the root, passes off into the air, and again they convey to the trunk nourishment from the air. They are, as it were, the lungs of the tree, and unseasonably deprived of their assistance, it would languish and die. Various and wonderful are the works of God! a simple leaf, with its delicate, thread-like veins, its use and beauty, proclaims the hand that made our world and sun, and the thousand suns and worlds that fill the universe.

When vegetation ceases, when the season of repose arrives, leaves are no longer needed; they are done with, and dismissed. Let us remember the work *we* have to do—one of far deeper importance than that of leaves; and as they rustle beneath our feet, they should remind us that “the end of all things is at hand,” and “the night cometh when no man can work.”

Yet even now, how cheering it is to see the promise of future beauty! The leaf-buds of the lilac are formed and full; the honeysuckle buds are ready to burst into fresh life, and here and there a little sprig has fairly expanded, looking quite like spring. These natural objects are symbols of better things. Is there with any of us a time so dark and dreary, that a word of peace, or promise of mercy, is not sent to cheer us?

The rich blossoms of the laurustinus are now the ornament of the garden. It is an invaluable winter shrub, for it blossoms just when we most require it; when there is nothing but the holly-berry to enliven the scene. It is remarkable that the laurustinus should so fearlessly brave our northern winds and frosts, for its native clime is the South of Europe, and the northern part of Africa; and it was not brought into England until the end of the sixteenth century. Much care, no doubt, was taken to harden it to the severity of our winters, which in those days were far more bitter than they are now; and by the success with which it has been cultivated, we may be encouraged to try if we cannot harden other tender plants. The myrtle might with little trouble be inured to the open air. It is a hardier plant than many people are aware of, and less liable to suffer from frosts when in the open border than in pots; and the more woody the

plant is the better; they thrive extremely well against a south wall, matted up through the winter with litter, ashes, or other protection over their roots; but let them have air, or else the shoots will be very weak. With a little shelter they would do well as garden shrubs, and be beautiful additions to the borders. They make fine plants if cut down, and covered with thick cotton or wool, as I have directed for border geraniums; but then they never grow beyond a certain size. They might increase to be a large and vigorous shrub, if cared for during the winter, and would amply reward our trouble: their delicate silky blossoms are very fragrant, and their foliage bright, glossy, and ornamental. The myrtle is a native of warm climates, grows abundantly in the East, as well as in many parts of the South of Europe; and is used in Scripture as one of the emblems of the flourishing beauty of the church. It leads our thoughts, too, to the vision of Zechariah, amidst the myrtle trees, full of good and comfortable words to the afflicted people of God. The mild air of Devonshire permits the myrtle to live through the year, and it abounds on its southern coast, which may give us hope of gradually strengthening it in the colder parts of England.

The poor languid-looking chrysanthemums are fading fast, but they have brightened our borders long after other beauties closed their summer season; and very graceful, delicate-looking flowers they are. They should always occupy a sheltered spot, and the soil should be light and good. Leaf-mould suits them very well, and they are improved by soapsuds. I see them in cottage gardens flourishing with very little care; and although, of course, smaller in size, yet valuable as so long enlivening the border. If placed against a wall they look very graceful, and do well; they should be trained thinly and regularly, like a peach-tree, and if possible enjoy a southern aspect; they will then bloom till a late period of the year. The dark red lilac, and primrose-coloured varieties, are most frequently seen as border plants; and grouped together, have a beautiful appearance. Those raised in pots are sometimes extremely large, and very rich in colour.

Our garden work is now drawing fast to a close; there is little left to do, except to sweep up scattered leaves, and tie up the branches of climbing plants when storms have loosened them. Do not rake away the dead leaves beneath evergreens; they protect the roots, and enrich them too, as they decay; let them be swept under the shrubs again, as the winds disturb them. If evergreens require to be headed down or clipped, wait till the spring, the season is now too far advanced—frosts are at hand, and would injure them. But shrubs or hedges that shed their leaves, such as hawthorn, privet, hornbeam, &c., may be clipped and trimmed with safety. Even at this chilly season it is pleasant to wander about our garden, if we only find one stray twig to trim, or fix in its proper place. We mark the spots where our bulbs lie hid; we watch the early spring plants, hoping to see the first shoot rising among the decaying leaves; and till the snow falls and hides them from our sight, we are daily visiting our borders. To the rich and poor alike the garden is of perpetual interest. How much enjoyment is lost to those who do not possess this taste! and to those who do, all season have a charm. To ladies it is a source of health as well as pleasure; it draws them from their weary worsted work, to inhale fresh balmy air; benefits mind and body, and if they will *perceive*, their views of the wonders of creation will be extended, and their thoughts led in ten thousand ways to God.

MANGOLD-WURTZEL AND SWEDISH TURNIPS.

HAVING stored the mangold-wurtzel and Swedish turnip crops, it may not be uninteresting to some of the readers of *THE COTTAGE GARDENER* to know the particulars of their cultivation adopted at Bicton, for an abundant crop of these roots is no bad store for those who keep a cow or pig. It is a resource to go to through the winter, instead of having to incur a heavy account at the mill or the mealman's. Both the roots above-named are of well-known value for stock, particularly when boiled or steamed; and since the potato has so much fallen off, they will come into more extensive use.

When good pig or farm-yard manure, or manure made from a mixture of the slops and refuse of the house and garden, can be had in abundance, no artificial manures are required; but as that abundance cannot always be commanded, it may be of service to detail some results I have obtained from using the latter. To plots of Mangold and Swedes were applied Peruvian guano, at the rate of 3 cwt. per acre. It was mixed with dry ashes, and put on and hoed in at twice after the plants had commenced growing strongly. To two other plots were applied 3 cwt. of Mr. Barker's "New Patent Submarine Manure;" and to other plots was applied a mixture of 2 cwt. charcoal-dust and 1 cwt. common salt. In both cases applied at twice. The results were nearly equally good in all. The Swedes were drilled in, the rows twenty seven inches apart, in May, on a sandy loam well prepared for them. They came up quickly, and grew away strongly. As soon as they were up the surface of the ground was gently crust-broken, by running over it a light wooden one-man roller, with a few light bushes tied to its frame behind. This was done two or three times before the turnips were hoed. At the first hoeing no plants were cut out, but the thinning was done in due time, and the hoeing repeated as long as it was possible to perform it.

The average produce of these Swedes per pole or rod, of 16½ yards square, was from 298 lbs to 314 lbs after their tops and roots had been trimmed off. The tops per square rod averaged 53 lbs.

The mangold-wurtzel averaged 146 lbs per row thirty-three feet long, after their tops, &c., had been cut off. The tops from the same length of rows averaged about 15 lbs. In cultivating these crops, if a plant fails at the time of their early growth, the vacancy is immediately filled up by transplanting; and they are kept perfectly free from weeds, and the surface as open as possible by frequent hoeings. This, in my opinion, is the grand, though simple, operation of all good cultivation. Unless the surface of the soil be kept open to admit the air, there will always be a proportionate deficiency of produce, and the crops will always be more liable to the attacks of vermin and disease.

J. BARNES, *Bicton Gardens.*

HINTS FROM OUR CONTEMPORARIES.

CRYPTOMERIA JAPONICA.—We are much gratified to find that Mr. Tillery, of Welbeck, Mr. Cox, of Red-leaf, Mr. Kail, of East Horsely Park, and other first-rate gardeners, agree in stating that they find this beautiful tree perfectly hardy, and capable of enduring our climate. For this member of the fir or pine-tribe we are indebted to the researches of Mr. Fortune in China.—*Gard. Journal.*

ROSES.—Mr. H. Bowers, of Busbridge, near Godalming, says he finds these flowers much improved by being root-pruned and transplanted once every three years. Early in November he removes a part of the soil about them, puts in its place plenty of rich dung, shortens the strong roots, and replants them immediately. This treatment makes the roots compact and vigorous; and they bloom freely, producing no suckers.—*Gard. Chronicle.*

CHARCOAL.—Many of the Orchidaceæ at the London Horticultural Society's Gardens at Chiswick are growing on charred blocks of wood, and their vigorous aspect shews that they delight in this treatment.—*Gard. Almanack.*

TO CORRESPONDENTS.

MULCHING (*J. Wharfe*).—Mulching is putting fresh long dung about the roots of a plant, but on the surface of the ground, to keep them moist.

KIDNEY BEAN SEED (*E. W. Childs*).—It will produce fruitful plants next year, if only two years old.

CUT POTATO-SETS (*Ibid.*).—As you have been so badly persuaded, leave them; they may survive, though the chances are against them.

SEEDSMEN'S NAMES (*Iola, Middleborough*).—A list will be found in "Johnson's Gardener's Almanac for 1849," just published. The error you point out has been corrected.

FOUNDRY LOAM (*J. J.*).—This, if clayey, would benefit a light soil; and, if sandy, it would be equally good for a heavy soil. It gets nothing from being used in a foundry that will render it injurious to plants.

HOLLYHOCK (*G. Howard*).—We will give some directions for its cultivation. If you have your copy of *THE COTTAGE GARDENER* through a Bookseller, the delay arises from his having no parcel from London until Saturday or Monday.

SOOT (*M. Bury, Green Lodge*).—Soot may be employed advantageously to mix with the earth in potting most plants. We shall give directions for cultivating the verberna in due time; and all the illustrations we can afford.

RASPBERRIES (*An Amateur Gardener, Fareham*).—You will find an answer to your query in our sixth Number. Cut all the canes down in April. The young shoots, Mr. Barnes says, will bear the same autumn. "Picking out the tops" of the young shoots, means ripping off the top bud of each.

COWS, PIGS, POULTRY (*Rev. P. W.*).—We intend to include these among our subjects by degrees. The difficulty is to get practical men to write about them.

CELERY (*V. Hampson*).—A letter addressed to Mr. J. Turner, Neepsden, Sheffield, stating your wants, will reach Mr. Nutt.

CHOU DE MILAN (*A Willing Payer*).—This is not a brocoli, but a borecole, and, translated into English, means the Milan cabbage. Cut off its head, when it will produce numerous sprouts.

KOHL RABI (*Ibid.*).—This is the turnip-rooted cabbage (*Brassica caulorapa*). The bulbs are not so palatable as the turnip, and the tops are not so good as the cabbage. Nohl Khol is the turnip-cabbage (*Brassica napo-brassica*), having a fleshy swelling on the stem, and, like the other, is of little value for table use. They are hardy and good for pigs, &c.

PRODUCTIVENESS OF FRUIT-TREES (*A Subscriber*).—This depends so much upon soil and management, that we fear we can give you no accurate information, but we will inquire. The book you ask for is "Johnson's Gardener's Dictionary."

UN FRANCAIS (*Cheltenham*).—Asphodel tricolor we do not know; and the daphne and peonia are for borders, not for pot-culture. Full directions for cultivating the camellia in rooms will soon appear in our pages.

HYACINTHS IN MOSS (*E. M. Gausworth*).—All the common spring bulbs, such as snow-drops, snow-flakes, tulips, hyacinths, narcissus, &c., will grow and flower in moss. The plan has been followed more than thirty years, and there is no question about its answering. Pack the moss firm, and bury the roots below the surface. All the water required is to keep the moss always damp. The pot or vessel, must be drained as when soil is used.

WARM PIT (*S.*).—It will not answer to place soil over the fine, to plunge pots in; the soil when dried by the fire would be a powerful non-conductor of heat. Melons and cucumbers can hardly succeed by your arrangement. Place a stage of boards above your fire, and twelve or eighteen inches above it, to lay the pots on; all greenhouse and window-plants may easily be wintered in pits, where they have head-room enough, and where frost can be excluded.

SCARLET GERANIUMS (*Margaret*).—A kitchen-window is generally too hot to winter scarlet geraniums in; the heat will not let them rest properly: pick off their leaves and put them in a spare box or cupboard upstairs, and cover them well when frost prevails, and let them have air in mild weather; if any of the tops are damp, cut them off instantly.

CHARRING PEAT (*A Subscriber*).—Both the samples of peat you have sent to us would answer admirably for charring. You will find sufficient directions by Mr. Barnes, at page 83 of our eighth Number.

You can char any quantity at a time, from a few barrow-loads to as many waggons-full. The black portion of your peat is not charred, it is merely dried vegetable matter and sod strongly coloured with the oxide of iron. Charred peat would act admirably as a disinfectant for the fifty years' accumulation of night-soil. One load of charred peat to five of night-soil would be sufficient.

STAKES (*A. A.*).—Pitch or tar on that part of a stake driven into the ground is not at all injurious to the roots of plants. The best mode of preserving that part of a stake is to char it, letting the charring extend over that portion just above the soil. Paint can be put on over the charred part, as well as over the rest. Stakes and posts thus treated will outlast three or four that are uncharred.

NAMES OF ROSES (*W. H. Thomas*).—We should have given the names in English if they had any, for we are quite alive to the utility of putting everything in our own language; but we could not re-christen the roses.

NUTRITIVE MATTER IN VEGETABLE MARROW (*O. S.*).—We believe that there is 10 per cent. of nutritive matter in the vegetable marrow, and about 13 per cent. in mangold-wurtzel.

APPLE AND PEAR-KEEPING (*Ibid.*).—You will find our opinions on this subject fully given at page 31 of our fourth Number.

BOOK ON THE POTATO (*J. H. Chippenham*).—Johnson on the Potato, published by Bohn. We will see as to the list of potatoes you suggest.

COTTAGE GARDENER (*J. S., Newcastle-on-Tyne*).—The delay in the delivery must be with your bookseller or his agent. We supply the country trade a day or two before the regular day of publication.

GREENHOUSE (*Danum*).—We will here long publish a description and plan of what we consider the best mode of constructing this.

PORTUGAL CABBAGE (*A. W.*).—This, we presume, is the Portugal, or large-ribbed borecole. The heart of this is boiled as usual, but the ribs, which are very large, of the outer leaves are most excellent if cut out, tied into bundles, and served up at table as asparagus. Seed of it sown at the end of March, will produce plants ready for use at the end of autumn and early winter; sown about the middle, the plants are ripe late in the winter.

BOWER (*G. W. Pretty*).—To have this covered with evergreens as quickly as possible, situated as it is under the branches of a spreading apple-tree, you cannot do better than to plant ivy and evergreen honeysuckle. We would also recommend a row of the large periwinkle (*Vinca major*) all round; it will keep the bottom thickly evergreen. We shall be glad to hear of the results of the autumn-planting of potatoes adopted by you and your neighbours.

PLANTS UNDER A SYCAMORE (*C. M.*).—No plants will do here so well as where they have more light, a freer circulation of air, and less drip. The plant that will endure such a situation with least injury is the large periwinkle (*Vinca major*). You may try also, with a prospect of some success, the lily of the valley and the wood-sorrel. If you wish for a few shrubs also, plant the variegated holly, aucuba, laurustinus, holly-leaved berberry, scarlet-blossomed currant, and guelder rose.

SEED DAMAGED BY POST-OFFICE (*W. X.*).—We hope that the slight injury your seed has received will not prevent its growing. Unfortunately we have no more to send you. We have had one accidentally broken in two, which we have joined again by means of a little collodium (gun-cotton dissolved in ether); this forms an artificial skin over the wound, insoluble in water, and we are trying whether the seed will now grow.

PROBABLE PRODUCT OF A DWARF RIBSTON PIPPIN (*A Subscriber*).—The Ribston pipin is so liable to canker in some situations, that it is a very uncertain kind to calculate upon. So much also depends upon the character of the soil, and of course the well-being and permanency of the tree. We should say, at 5 years old it would not bear more than one bushel per annum, average; at 10 years, not above two bushels; and at 10 years, about three bushels. These remarks apply to the dwarf trees, which are supposed to undergo regular pruning. Standards unpruned would produce much more.

MANURE FOR ROSES (*An Amateur, Tavistock*).—It is quite true that Mr. Rivers recommends night-soil for roses, and its offensiveness may be removed by mixing it with charred peat, or even charred weeds in equal quantities. Pig manures, from styes where pigs are fattening, would be nearly as good; especially if mixed with a little soot. One of the best manures for roses is super-phosphate of lime (bones dissolved in oil of vitrol). See page 56, in our sixth Number.

MOVING LARGE TREES (*J. Harrison, Preston*).—We have removed many large apples within the last twenty years with much success. Our trees have not, however, exceeded twelve years in age; if their trunk at the base not more, on an average, than five inches in diameter. We do not cut them down to mere stumps, as you have done, but merely thin the shoots much more than usual. They should be removed with much care, and the surface over their roots, when replanted, should be mulched. If the succeeding May be dry, they should be copiously watered. We will deal with this subject at large in the C. G. shortly. Your mode of covering wounds in trees with gutta percha dissolved in naphtha seems good.

OVER-LUXURIANT MARIE LOUISE PEAR (*A. W.*).—Throw out a circular trench about five feet from the stem of your Marie Louise pear, and cut every root clear away which comes to hand. Fill the trench again with any fresh turfy soil, and apply some littery mulch, three inches thick, over the surface of the uncut roots. In pruning, thin heavily, but do not shorten the shoots.

WEEKLY CALENDAR.

M D	W D	DECEMBER 14—20, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
14	Th	Tufted Pocher comes.	Swamp Pine.	1 a 8	49 a 3	9 1	19	4 55	349
15	F	Greenfinches collect in flocks.	Pitch Pine.	2	49	10 11	20	4 26	350
16	S	Camb. Term ends. O! Sapientia!	Chinese Arbor Vitæ.	3	49	11 19	21	3 56	351
17	SUN	3 SUNDAY IN ADVENT. [comes.]	White Cedar. [press.]	4	49	morn.	22	3 27	352
18	M	Ox.Term ends. Brent Wild goose	Slender-branched Cy-	5	50	0 25	23	2 57	353
19	Tu	Linnean Soc. Meeting. [comes.]	Two-coloured Heath.	5	50	1 29	24	2 27	354
20	W	EmberWeek. Long-tailed Pocher	Stone Pine.	6	50	2 33	25	1 57	355

O! SAPIENTIA!—These were the first two words of a Latin hymn, formerly sang in the church from this day until Christmas-eve. The first line of this hymn in English was, "O! the wisdom which proceeded from the mouth of the Most High."

EMBER WEEK.—This is one of four weeks first appointed by Pope Calixtus, in the third century, for imploring a blessing upon the earth's produce. They were seasons of peculiar fasting and mortification, when the priests put on "sackcloth and embers" (ashes). The Sundays immediately after these weeks are now appointed by the English Church for the ordination of her ministers.

PHENOMENA OF THE SEASON.—Although we have had a few

very severe night-frosts, yet the days and weather generally were so mild and moist throughout November, that the common earth-worms were always to be found within a few inches of the surface, and often stretched upon it enjoying the moisture of the air. Their casts are even now almost as abundant upon our lawns as they are in the mildest and most showery days of April. Such casts are obnoxious to the eye of those who "in trim gardens take their pleasure;" but otherwise these timid piercers and borers of the subsoil are the friends, rather than the enemies, of the cultivator. There is no doubt of worms promoting the natural drainage of the soil; and, though they occasionally unroot a seedling, we think the good they do far outweighs their misdeeds.

INSECTS.—Early in the present month appears the December Moth (*Eriogaster—Pecilocampa—papuli*); and it is the more notable by being almost the only one that is now to be found. It is not a



rare moth, and is to be detected sticking to the trunks of trees in orchards. The colour of the upper wings is a dark chesnut, with a grayish fringe; and when outspread, they are about an inch and a quarter across. They have a pale band curving towards the body, and another wavy band across the centre of each upper wing. The female moth deposits her eggs on the upper branches of the poplar, and of various fruit-trees. From those eggs the caterpillars are produced late in the spring. Their sides are grey, their backs are dark grey, with four red dots on each ring. They are in companies when young, under a silky web, from which they come out at night to feed upon the leaves. By degrees, as they grow larger, they leave the web, and live singly until full grown, when they spin a little silky bag, or cocoon, in which they remain in the chrysalis state until the next December, when they in their turn give birth to moths.

DECEM.	1841.	1842.	1843.	1844.	1845.	1846.	1847.
14	Cloudy.	Fine.	Fine.	Frosty.	Showery.	Frosty.	Fine.
Highest & lowest temp.	42°—27°	56°—36°	51°—41°	32°—28°	44°—35°	30°—13°	51°—32°
15	Showery.	Fine.	Fine.	Cloudy.	Showery.	Frosty.	Fine.
	50°—37°	56°—38°	54°—39°	40°—34°	51°—39°	30°—13°	54°—47°
16	Fine.	Cloudy.	Showery.	Cloudy.	Fine.	Frosty.	Fine.
	49°—30°	55°—48°	54°—38°	43°—35°	51°—42°	35°—21°	53°—46°
17	Frosty.	Cloudy.	Fine.	Cloudy.	Showery.	Fine.	Fine.
	39°—17°	51°—31°	54°—30°	44°—35°	49°—40°	36°—15°	55°—46°
18	Frosty.	Fine.	Fine.	Showery.	Rainy.	Frosty.	Rainy.
	35°—16°	47°—35°	45°—40°	44°—40°	49°—35°	33°—23°	49°—26°
19	Frosty.	Cloudy.	Cloudy.	Showery.	Cloudy.	Rainy.	Fine.
	37°—27°	45°—35°	47°—42°	42°—29°	49°—36°	44°—41°	47°—32°
20	Frosty.	Cloudy.	Cloudy.	Fine.	Fine.	Rainy.	Cloudy.
	39°—20°	52°—46°	49°—41°	38°—23°	47°—32°	48°—42°	41°—31°

ing than vegetable matters, because the first contain abundance of ammonia, and the latter very little. Then again, night-soil, pig-dung, guano, and pigeon's-dung, are the richest manures; and these contain more ammonia than any other; and ammonia is beneficial to plants, not only as a stimulant, but because it is a component of all cultivated plants, as the researches of modern chemists demonstrate.

LAST week we confined our attention to the lime, or calcareous refuse of the gas-works, and we now address ourselves to the consideration of the gas-water, or ammoniacal liquor obtainable at the same manufactories. In so doing, we have little to add to the following statements which the editor had previously published in another form.

Every gardener must be aware of the experiments lately made, by mixing gypsum, green vitriol (sulphate of iron), and other bodies, with farmyard manure, to fix or prevent the escape, during its putrifying, of the ammonia it contains. The reason for making those experiments is, that all chemists and all practical men agree that manures are fertilizing just in proportion to the quantity of ammonia which they contain.* All animal matters are more fertiliz-

ing than vegetable matters, because the first contain abundance of ammonia, and the latter very little. Then again, night-soil, pig-dung, guano, and pigeon's-dung, are the richest manures; and these contain more ammonia than any other; and ammonia is beneficial to plants, not only as a stimulant, but because it is a component of all cultivated plants, as the researches of modern chemists demonstrate.

Now ammonia is contained in large quantities by the gas-water. All coals yield carbonate and acetate of ammonia when distilled in the retorts of the gas-works, and, being soluble, the gas is purified from these salts by passing it through water; and how valuable it is thus rendered as a manure is thus testified by Mr. Cuthbert Johnson, in his *Farmer's Encyclopedia*:

"There are many testimonials in favour of the use, as fertilizers, of the salts of ammonia, either in their pure state, or as found in an impure combination with soot, or in the liquor of the gas-work. 'Soot,' says

* We explained in a former Number that ammonia is the active spirit of smelling salts, hartshorn, &c. Gypsum, or Plaster-of-Paris, is composed of oil of vitriol and lime, and the ammonia unites with its oil of vitriol.

Davy, 'owes part of its efficacy to the ammoniacal salt it contains.' The liquor produced by the distillation of coal contains carbonate and acetate of ammonia, and is said to be a very good manure. In 1808, I observed that the growth of wheat, in a field at Roehampton, was greatly assisted by a very weak solution of acetate of ammonia."

Care must be taken in using this and all other liquid fertilizers not to make the solution too strong; it is an error into which all cultivators are apt to fall in their early experiments. Davy was not an exception: from making his liquids too concentrated, he obtained results which widely differed from his latter experiments.

There is no doubt but that the salts of ammonia, and all the compound manures which contain them, have a very considerable forcing or stimulating effect upon vegetation.

In the experiments of Dr. Belcher upon the common garden cress, by watering it with a solution of phosphate of ammonia, the plants were fifteen days forwarder than other plants growing under similar circumstances, but watered with plain water; and he also describes the experiment of a Mr. Gregory, who, by watering one half of a grass-field with urine (which abounds with the salts of ammonia), nearly doubled his crop of hay.

"It is probable," says Mr. Handley, "that the ammoniacal liquor which abounds in gas-works, and which, when formerly allowed to run waste into the Thames, was said to destroy the fish and prejudice the quality of the river water for human consumption, and which is still thrown away throughout the country, except at a few works, where they manufacture sal ammoniac, will, ere long, be extensively used as a manure, either through the intervention of the water-cart, or for the process of saturating and decomposing soil or vegetable matter. A very satisfactory illustration, on a small scale, has recently been submitted by Mr. Pain. He put into a vessel some leaves of trees, saw-dust, chopped straw, and bran, to which he applied ammonia, and closed it up. In about three weeks the whole was reduced to a slimy mass; he then stirred it, and added a little more ammonia, and, when submitted to the English Agricultural Society, it was reduced to a black mass of vegetable mould, strongly impregnated with volatile salts, and in very small particles, similar to peat mould. When applied in its liquid form to grass, like salt, it apparently destroys the plant; but the spot is distinguished by increased verdure the succeeding year."

If applied to land in a liquid form, by means of a watering-pot, it should be previously diluted by mixing with it at least five gallons of water to each one gallon of gas-liquor. And its effects will be rendered more permanent, if the sour grounds of beer-casks, oil of vitriol, or other cheap acid, be mixed with it; for the acid combines with the ammonia, and renders it less volatile, or, in common language, fixes it.

The best mode of proceeding is to add oil of vitriol to the gas-liquor until it ceases to effervesce, or until bubbles cease to rise copiously in it, and then to add five-times the quantity of water than there is

of liquor. A gallon of liquor will not require more than half a pound of oil of vitriol. Two hundred gallons of gas-liquor are sufficient for an acre.

By experiments made by a practical farmer, it was proved that gas-liquor was far more beneficial to grass than eight other manures, though two of them were bone-dust and soot. For an outlay of forty shillings per acre two tons additional per acre of hay were obtained. The London Horticultural Society have lately instituted experiments upon manures, for the improvement of *lawn*s, and the conclusion arrived at was extremely in favour of gas-liquor when compared with other manures.—*Johnson's Gardener's Almanack*.

Mr. Knight, a most respectable farmer of extensive lands at Winnal, near Winchester, uses annually thirty bushels per acre of gas-lime and ashes, one-third being gas-lime. He drills it in with *turnips*, and sows with *barley* and grass afterwards. He allows the gas-compost to lie twelve months before it is used. The ashes are also from the gas-works, and have absorbed gas-water and tar. He has tried them against guano successfully.

To the gardener, gas-water also offers a powerful remedy against one of their greatest enemies, the louse or green-fly (APHIS), which attacks their pea, bean, and other crops so destructively. I have found it equally effective in destroying the black louse (APHIS CERASI), which is occasionally so injurious to the Morello cherry. Dr. Lindley states (*Gardener's Chronicle*), that—

"It has lately been ascertained by Mr. George Gordon, the Superintendent of the Hardy Department in the Garden of the Horticultural Society, that the ammoniacal liquor of the gas-works, diluted with water, is a certain remedy for the green-fly, which has been so unusually abundant during the present year. He has found that, although gas-water in its undiluted state burns foliage whenever it touches it, yet that plants do not suffer from it when considerably weakened with water."

It appears that when the London gas-liquor is mixed with ten times its measure of water, and applied with a syringe to the parts of plants infected with the green-fly, it causes so speedy a destruction of those insects, that the greater part disappear after the first dose, and a second application is sufficient to clear away all the remainder. Upon mentioning this discovery to a person whose garden was, four days since, in a most deplorable state from swarms of green-fly, he ordered his gardener to repeat the experiment with gas-liquor, weakened with twelve times its measure of water. The following morning, upon looking over the bushes, it was scarcely possible to detect a living individual; the leaves were green and much refreshed by the operation. The syringing was only used twice.

As we foresee that many inquiries will be made as to the proper proportion of gas-liquor and water that ought to be employed, it is as well to anticipate them

by saying, that it is impossible for us to answer such inquiries, except in general terms.

Everybody must ascertain the fact for himself, by mixing gas-liquor and water in various proportions, and trying their effect in a small way at first.

The fact is, that the quantity of ammonia contained in gas-liquor is extremely variable—the gas-works making it of no uniform strength.

That used by Mr. Gordon and by the gentleman above alluded to was very strong; effervescence not ceasing in an ounce of it until fifty drops of the sulphuric acid (oil of vitriol) of the apothecaries had been added. Those who wish to determine the relative strength of that which they employ, can do so by a very simple process; take one fluid ounce of the gas-liquor to be employed, and add to it, drop by drop, such sulphuric acid as may be bought in the apothecaries' shops, until effervescence ceases. Then, supposing they find this to occur after twenty-five drops have been added, they will know that their gas-liquor is only half as strong as that used by the Horticultural Society; and, consequently, instead of adding ten parts of water to one part of gas-liquor, they must only add five parts, to obtain the same strength, and so on.

It is true that this is not a very exact proceeding, because the sulphuric acid of the apothecaries itself varies in strength, but we conceive it to be quite sufficiently exact for gardening purposes. There is one important advantage that is obtained by this process, namely, that independently of killing the green-fly, the plants are well manured by the same operation; so that nothing is lost.

Gas-tar is an excellent manure, for it not only is composed entirely of vegetable matters, but is abounding in ammonia. Daniell's manure, which has been found so beneficial in many instances, has gas-tar among its chief constituents. It is easily spread over the surface of the soil, and ploughed or dug in, if mixed with earth and ashes. It should be applied just previously to the last ploughing or digging, immediately before sowing or planting. But this is not the only use to which the gardener can apply gas-tar beneficially. It is an admirable paint for old walls, giving them a fresh face, destroying insects, filling up holes, especially if mixed with a little lime-dust, and so combines with the old mortar as to give it additional firmness to retain the nails used in training fruit-trees.

Finding it quite impossible to make room for the contributions sent us by CORRESPONDENTS, or for special directions for ALLOTMENT TENANTS, we purpose publishing, at the end of each month, an extra Number, to be devoted to those subjects, and to contain a copious INDEX of the contents of the previous month's Numbers.

THE FRUIT-GARDEN.

HEDES AND HEDGE-ROW FRUIT-TREES are by no means unimportant items in small gardens. Other boundaries prevail, especially in the neighbourhood of towns, such as wooden fences and regular garden walls; the latter for the most part forming an enclosure to the garden of the amateur; but our purpose now will be to deal with the ordinary hedge, as bearing on the cultivation of hedge-row fruit-trees.

The mode of planting hedge boundaries differs in various situations; the difference for the most part being founded on the mere custom of the district. Thus, in one county, the folks have no other idea of a hedge but one raised half a yard above the ground level; this, in the north-western parts of England, is termed a "cop." This cop has been forced into practice, no doubt, from the grazing fields in the vicinity; and certainly, whilst the hedge is in an infant state, the cop is of much service in withstanding the inroads of the cattle on the other side. These cops, however, are very sorry affairs in some instances, especially on dry uplands. We have known many such in our day, which neither could produce nor maintain a good hedge. This is in part owing to the small amount of pains bestowed on the construction of the cop bank; for, whether the soil on the spot be good or bad, it is tumbled over, and turfed up at the sides; and where the soil is of a changeable character,—now a morass, now clayey, and then again mere sand—the hedge of course partakes in appearance of the fitful nature of the soil beneath. We know of hedges of this character extending for miles, in which luxuriant patches alternate with those in a half-starved state. In fact, in some places the hedge never rises a foot from the surface. To the stranger, this is a cause of surprise, but on a little examination it is perceived that all the strong-growing parts (many of which rise seven or eight feet in much luxuriance) are in the lowest dips, whilst those on the rising ground are stunted. The hedges in question flank the road-sides from Delamere Forest onwards towards Chester. They were formed, probably, by gentlemen deputed from the Woods and Forests' Board, who, not having practical and local information on the subject, have missed their aim.

If a hedge is at all necessary, means should be taken to make it a good and an equal hedge, for we are in the habit of thinking a boundary-fence a most important affair.

The introduction of fruit-trees into hedge-rows is worthy of much consideration, for, as we have before observed, we have known the cottager to realize a considerable portion of his rent from his hedge-row fruit-trees. We will, therefore, endeavour to encourage such cultivation, by a little advice founded on practice.

The best chance for thus establishing fruit-trees occurs when a new hedge is being planted: then it is that soil can with facility be introduced at the station for the trees, which will render them permanent in character; and, if manured aright, not unfrequently superior in productiveness to those in cultivated gardens, where, by an injudicious attempt at cropping close to the surface of the trees, the spade carries on a most destructive warfare with the valuable surface roots. When such a hedge is planned, and it is determined to introduce fruit-trees, some pains should be taken to examine both soil and subsoil along the whole length. It not unfrequently happens that, from sudden variations in the texture of the soil, an exchange may be accomplished, which will preclude the necessity of carrying soil from other parts.

The first thing to be done, is to set out stations for the fruit trees. Their distance must be ruled by the situation of the dwarf fruit-trees on the garden-border, which, as we suggested in our chapter on slopes, should be within some eight or ten feet of the hedge. In this case, one hedge-row fruit-tree between every two garden or border-trees would be too much, especially on the south side of the garden; indeed, it is a question whether they ought to be introduced at all on the south. We would, therefore, plant only half the

number of hedge-trees; that is to say, in beginning at one end, we would plant one hedge-row tree in an angle, opposite the first two border-trees. We would then miss the next angle, and plant another hedge tree in the succeeding one, and so on.

In preparing ground for a hedge, which is to be a boundary defence, a portion of ground four feet in width should be trenched, or otherwise broken up. The depth to which this trenching should be carried depends on two things: first, whether there is to be a cop or bank above the ground level; and, secondly, as to what depth the good soil extends. If the ground in this part is very uneven in depth, and some parts a hungry sand or clay, we would remove as much of the *very bad* soil, before proceeding to trench, as was needed to receive some of a better staple. After this, some better soil must be placed in its room. When other portions of the line are rich in soil, a part may be borrowed from thence. The stations for the fruit-trees being each marked with a stake, the soil in those spots must have a little extra examination, and materials of a sound and enduring character dug in at those points. When it is considered how much the ground will be "sucked" by the roots of the hedge as well as of the fruit-tree, it is manifest that a little extra labour at these points will not be thrown away.

As to what kind of soil to introduce for the fruit-tree, that depends much on the character of the soil already there. If of a clayey and wet character, some mellow and free soil of any kind will render assistance; but if dry or sandy, marl, strong loam, or even clay may be introduced. We are anxious to impress on our readers that a strong staple should be provided at the tree stations,—a soil rather approaching clay than sand. We are aware that the mere cottager has much difficulty in procuring soil, and that some farmers are not so ready to accommodate them as they ought to be. We have, however, known plenty of cases where a man may give a day's labour in hay or corn harvest as an exchange for things of this kind; and two, or at most three, days' service would generally procure as much soil as the cottager would require. There is generally some low grass lands in most districts, where some furrowing has to be performed annually for temporary drainage purposes, and soil of this character is invaluable to mix with the hedge-soil, for the fruit-tree stations.

It must be remembered that turf of any kind, even from the sides of the lanes, commons, or wastes, is of the utmost service in this case; too much turf of any ordinary kind can scarcely be introduced. Even weeds, cabbage stalks, and other vegetable refuse may be blended with the mass. When good sound soil cannot be obtained, and the ground is poor and dry, we would strongly advise lumps of marl or clay to be tumbled in the bottom of the holes, where the fruit-trees are to be planted. A mixture, according to circumstances, being thus introduced, the work, as far as the fruit-trees are concerned, is complete. The deep digging or trenching of the hedge line may now be carried out, taking care on arriving at the fruit-tree stations not to rob it of its materials, but to pass by it. Any ordinary sandy or poor material met with in trenching may be tossed into heaps on one side; such, if requisite, will do very well to raise the surface with, for six inches of such on the surface will do no harm: the main business is to secure sound material for the roots below. About the hedge and fruit-tree planting we will offer farther advice in due course.

PEACHES AND OTHER TREES ON WALLS.—We shall now soon turn our backs on Christmas, when spring, with its peculiar and pressing labours, will soon begin

to advance. Nailing and training, if delayed, sometimes becomes a serious impediment to other matters; and we advise that all these things be got forward with speed. Many persons do not like to prune their peaches in the dead of winter: for our own part, we have pruned at all seasons for many years, and could never find any injury resulting from midwinter pruning of the peach. Where such has occurred, it must have been in the case of bloated and badly-ripened wood: and this is liable to such injuries under any circumstances. At any rate, let all the young shoots be loosened immediately from the wall, for the sake of picking and cleaning the shreds and nails, and placing them under horticultural quarantine. It is best with the peach and nectarine to remove every shred which can be spared, in order not to be fettered in re-arranging the shoots. Such may seem to involve much labour; we do not think so. We would rather undertake to nail a peach-tree totally un-nailed than one from which the bands had been removed sparingly.

Indeed, all the trained trees on walls or fences must now be gone over, with the same view; and as soon as the shreds are collected, they should, as in-door work, be picked over as soon as possible, using the test of a good tug with the two hands, in order to see if they will endure another year. As soon as picked, throw them into *boiling* water for a quarter of an hour or more, in order to destroy the eggs of insects, and then spread them out to dry, and secure them for business.

The nails should be shaken in a sack, the coarser it is the better. Put about a gallon into it, and let two persons, one at each end, shake them backwards and forwards; the friction against the bottom of the sack and each other, will loosen all extraneous matter. Some riddle them afterwards, and toss them in another sack, dropping a little oil amongst them before the operation. This will prevent rusting, and make them look quite fresh. In loosening the bands of the trees, care must be taken to leave as many as will prevent the shoots wind-waving, or they will get broken.

Plums, pears, cherries, and apricots, need not have so many bands removed; they bear chiefly on spurs, and spur-bearing trees do not require so extensive a re-arrangement as those which bear on the young wood.

Again we say, lose no time in carrying out pruning matters. The gooseberries should be done as soon as possible, but where their buds are liable to the depredations of birds, it is well to cut them very sparingly at this period. If they escape these pests, it is easy to go over them in the early part of April, and remove a few more shoots.

R. ERRINGTON.

THE FLOWER-GARDEN.

FERNS (*continued*): SOIL.—The soils suitable for ferns are of very various kinds. Such ferns as are found in moist shady woods require a mixture of heath-mould and rotten leaves. Those that grow on mountains will thrive in gravelly loam; whilst those that flourish in peaty bogs require a peaty bog soil, as, also, such as are natives of heaths or crevices of rocks do best if planted among sandy heath-mould. With those different soils most kinds of ferns may be successfully cultivated.

FERNS IN POTS.—Like the Alpine plants mentioned in the eighth Number, ferns may be satisfactorily cultivated in pots. We have under our care, at Pine Apple-place, a good potted collection of them plunged in

coal-ashes, under a wall facing the west, where they thrive very well. The larger-growing species, however, do not send up such fine fronds as they would do if they were planted out in a proper situation, and in the right soil. Some of the more delicate kinds do exceedingly well in pots, in a compost of peat-earth, light loam, and sand, mixed with very small pieces of broken garden-pots. The larger pieces can be used for drainage. Those delicate kinds are such as grow naturally in the crevices of rocks in exposed situations. Should the rains fall ever so abundantly and frequently, the roots of those ferns are never over-supplied with moisture, so in the pots the drainage must be so perfect that the superabundant water will readily pass off from the plants. Of course, those that are found in low moist places do not require so much drainage. In fact, if there be one piece of broken pot, or an oyster-shell, over the hole of the pot, it is quite sufficient.

WATER.—Ferns in pots should never be allowed to become dry. The fibres of the roots are so small and delicate, that drought soon destroys them. They should be sprinkled over head every morning and evening from April to August, excepting rainy days. In the autumn and winter they require no care but removing from them the decaying fronds and weeds. Mosses and lichens may be allowed to grow, as they will assist in protecting the roots from the severe weather of winter.

The following list of British hardy ferns, divided into their several localities, will materially assist the cultivator in placing them in his fernery :

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| <p>I.—Such Ferns as grow on exposed rocks and crevices of walls.</p> <p><i>Adiantum copillus veneris</i>. True Maiden's-hair Fern.</p> <p><i>Allosorus crispus</i>. Rock-brake.</p> <p><i>Polypodium colcreutum</i>. Smith's Polypody.</p> <p><i>Woodsia ilvensis</i>. Ray's Woodsia.</p> <p>" <i>atvina</i>. Bolton's do.</p> <p><i>Cystopteris montana</i>. Wilson's Mountain Fern.</p> <p><i>Polystichum Sonchitis</i>. Holly Fern.</p> <p><i>Lastrea oreopteris</i>. Mountain Lastrea.</p> <p>" <i>rigida</i>. Rigid Fern.</p> <p>" <i>recurva</i>. Recurved do.</p> <p><i>Asplenium lanceolatum</i>. Lance-leaved Splenwort. (Also on Sea-cliffs.)</p> <p>" <i>Adiantum nigrum</i>. Black do.</p> <p>" <i>Ruta muraria</i>. Wall-rue do.</p> <p>" <i>germanicum</i>. Alternate-leaved German do.</p> <p>" <i>septentrionale</i>. Forked Splenwort.</p> <p>" <i>trichomanes</i>. Common Splenwort.</p> <p><i>Ceterach officinarum</i>. Scaly do.</p> <p><i>Lycopodium annotinum</i>. Interrupted Club-moss.</p> <p>" <i>alpinum</i>. Alpine, or savin-leaved do.</p> <p>" <i>selaginoides</i>. Selago-like do.</p> | <p>II.—Such as grow on shady, moist Rocks, near Waterfalls or Ditches.</p> <p><i>Lonaria spicata</i>. Spiked Lonaria.</p> <p><i>Polypodium vulgare</i>, var. <i>cambricum</i>. Welsh Polypody.</p> <p><i>Polypodium phegopteris</i>. Beech Fern.</p> <p><i>Cystopteris fragilis</i>. Brittle do.</p> <p><i>Asplenium viride</i>. Green Splenwort.</p> <p>" <i>fontanum</i>. Fountain's Abbey do.</p> <p><i>Trichomanes speriosum</i>. Bristly Fern.*</p> <p><i>Hymenophyllum Tunbridgense</i>. Tunbridge Filmy Fern.†</p> <p>" <i>Wilsonii</i>. Wilson's do.†</p> <p>III.—Such as grow in moist, shady Woods.</p> <p><i>Polypodium dryopteris</i>. Oak Polypody.</p> <p><i>Polystichum angulare</i>. Angular Polystichum.</p> <p><i>Lastrea spinosa</i>. Spiny Lastrea.</p> <p>" <i>multiflora</i>. Many-flowered do.</p> <p>" <i>filix mas</i>. Male Fern.</p> <p><i>Athyrium filix femina</i>. Female Fern.</p> <p>IV.—Such as grow on Hedges, open dry Heaths, and old Pastures.</p> <p><i>Athyrium filix femina</i>, var. <i>Smithii</i>. Smith's Lady Fern.</p> |
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| <p><i>Polypodium vulgare</i>. Common Polypody.</p> <p><i>Polystichum aculeatum</i>. Prickly Polystichum.</p> <p><i>Scolopendrium officinarum</i>. Hart's Tongue Splenwort.</p> <p>" var. <i>undulatum</i>.</p> <p>" <i>Wavy do.</i></p> <p>" var. <i>angustifolium</i>. Narrow-leaved do.</p> <p><i>Botrychium lunaria</i>. Moonwort.</p> <p><i>Lycopodium clavatum</i>. Club-Moss.</p> <p>" <i>selago</i>. Fir do.</p> <p><i>Ophioglossum vulgatum</i>. Common Adder's-tongue.</p> | <p>V.—Such as grow in Boggy Heaths.</p> <p><i>Lastrea thalypteris</i>. Marsh Fern.</p> <p>" <i>cristata</i>. Crested Lastrea.</p> <p><i>Osmunda regalis</i>. Royal Fern.</p> <p><i>Lycopodium inundatum</i>. Marsh Lycopodium.</p> <p>VI.—Sea-side Ferns.</p> <p><i>Asplenium marinum</i>. Marine Splenwort.</p> <p>" <i>Lanceolatum</i>. Lance-leaved Splenwort.</p> |
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PLANTING.—The fernery being completed and ready for planting, select as many of the first section as you may possess, then turn them out of their pots, and fix them in the crevices of the rockwork, pressing with the hand as much of heath-mould as will serve to fix them firmly in their several places. Plant this section on the east and west sides of the rockwork. The second section should be planted on the north and inside of the fernery in the crevices of the rocks, in a similar manner as the foregoing division, with the exception of the Bristly or Irish fern, which should be managed as described in the note. The third division should be planted on the lowest step, all round the fernery, in a compost of equal parts of loam and sandy heath-mould. As these are all, excepting *Polypodium Dryopteris*, large growing species, they require a space of at least two feet each to exhibit their fine foliage to advantage. The fourth section ought to be planted on the highest levels, in the same compost. The common polypody is a creeping species, and may be inserted in hollows of old stumps of trees, but the Moonwort and Adder's-tongue should be planted on a level part, and the surface covered with a coating of moss. A few pebbles or flints laid upon the moss will keep it in its place. The club mosses require planting, and part of their stems covered with moss and pebbles. The rest of the species of this lot merely require planting, and allowing a moderate space to grow in. Fifth section. The Royal Fern is in this division, and a noble, elegant species it is. As the whole of them are natives of boggy, wet places, they should be planted in the space round the small piece of water, inside the bank described in the last Number. The space allotted for them should have a coating of real bog-earth, nine inches or a foot thick. Plant them in it thinly, and keep the soil very moist, and as light as possible. They will then flourish surprisingly, and be exceedingly ornamental.

Section the sixth, only numbering two species, should have a little sea-salt and gravel added to the compost, and be planted on ledges of stone or clinkers. We have thus at some length dilated upon the culture of this tribe of plants so remarkable for their loveliness. We thought it best to give a pretty complete essay on the subject at once, so as to render it unnecessary to refer to the subject again, except as a matter of routine management in future. One point is still wanting to render it complete, and that is, a list of hardy foreign ferns, which we intend to give in some future Number.

AMATEUR'S FLOWER-GARDEN.—Again we must treat our amateur and cottage friends to read the essay on hardy ferns in this and the preceding Number, and put it into practice as far as possible. We are quite sure they will be highly pleased with their labours. The alpinery and fernery may on a small scale be joined, but the plants should be kept separate, that is, the ferns and Alpine plants should not be mixed, as they do not bear the same treatment.

* This is a very choice fern, chiefly found in Ireland; it requires a constant dipping of water over it. This may be managed by having a small vessel—a tub, for instance—higher than where the fern is planted, with a small hole bored in the vessel sufficient to allow a drop or two out at a time.

† These two are also scarce and elegant ferns, loving moist rocks, but not requiring the drip over the herb, as the former one. In winter the whole three should be covered with hand-glasses, and a little common dried brake, or fern, thrown over them in severe frost. They are so lovely and curiously elegant, that they are worth all the pains you can bestow upon them.

PRUNING.—Now is the proper time to prune shrubs, &c. The principles to act upon are to produce the greatest quantity of flowers, and to bring the object into the proper and natural shape. All the small twigs in such shrubs as lilacs and syringas should be carefully removed, especially near the ground. If they are left, they only serve as receptacles for fallen leaves blown about by the winds, and to waste the energies of the shrubs, so as to prevent, in a measure, the production of flowers and healthy foliage. Common laurels frequently send forth a few extra strong shoots; these must be shortened in level with the more moderate growing ones. All dead branches must be cut clean out, and also such as are diseased or ill placed. All the tools used in pruning—the knife, chisel, and saw—ought to be kept in good order. The wounds made by the saw should be pared smooth with the knife. All the prunings should be thrown together in some open place, and set fire to. Put upon them either some turf or rough soil, so as to char them. This is an excellent manure.

COTTAGER'S FLOWER-GARDEN.—We trust our cotten friends are profiting by the fine open weather we have been favoured with, and that all the various projects we have treated upon are either completed or progressing. Continue to watch the plants that require protection, and remove all things that will injure them. Strive to have in your flower-garden what we have recommended to you from time to time. Depend upon it your labour will gratify and reward you when the season for your floral display arrives.

FLORISTS' FLOWERS.

CARNATIONS AND PICOTEEES.—These beautiful, sweetly-scented favourites are of similar habits, and require the same treatment, and, consequently, are generally grown together. We shall, in the first place, consider (in answer to a correspondent) what kind of a blooming stage they require. We will suppose the collection to be small, say forty pots, containing eighty plants. The situation for this stage may be against a wall, facing the west or east. The stage itself should be level, raised from the ground one foot, three feet six inches wide, and fourteen feet long. This will hold three rows of pots, thirteen in a row, each pot being one foot wide, the centre or back row may contain fourteen. The stage should be supported by posts driven into the ground, and cross pieces of wood, three inches square, nailed upon them. Upon these the boards, eleven inches wide and one inch thick, must be laid, leaving about an inch between each, to allow the water to run off. Provision must be made for a shade to protect the blooms from the sun and rain. Four posts must be set up at six feet from the wall. This distance will allow two and a half feet for a walk. The height out of the ground being six feet; also four rafters to support the roller and canvass, should be laid sloping up to the wall. A roller of deal wood made round, two and a half inches diameter, will serve to nail the canvass to; the other end of it should be nailed to a flat piece of wood, fastened to the top of the wall. The canvass ought to be strong, and moderately-close woven. Such canvass costs about 7d. a yard. The wheel is formed of three circular pieces of wood, the centre one being two inches thick and five inches in diameter. The other two should be each ten inches diameter, and one and a half inch thick. The two latter pieces are to be nailed to the other, and bevelled off, so as to bring them to an edge outwards. When the wheel is thus

made, and fastened to the roller, it will form a sort of groove to receive the cord. When the blind is drawn up, the cord, one end of which is nailed to the inner circular piece of the wheel, is all off the wheel; and when let down, it is all rolled round it. This is a simple and effectual mode of drawing up and letting down a shade or blind. The blind should come down as low as the stage; and as, in the blooming season, winds may at times prevail, the ends ought to be closed up either with mats or canvass. Previously to fastening the canvass to the roller, let the whole have two or three coats of paint, stone colour being the neatest and cheapest. The post and rafters may be ornamented with honeysuckles or roses, which should be fastened with nails and shreds to the inside, so as not to interfere with the blind. The cost of a stage with shade, &c., of the above dimensions, will be about six pounds.

GREENHOUSE AND WINDOW GARDENING.

REMEMBERING NAMES.—The most difficult part to a new beginner in gardening and growing plants is the quantity of strange hard names he has to learn. At first sight the great majority of these names look formidable enough; but as names of some kind are necessary to distinguish one plant from another, we must learn them; and if we begin aright, all difficulties will soon vanish away with a little perseverance. The best way is to think of only one name at a time, to repeat it over and over again; and if it sounds like anything you already know, associate it with that, and it will so far aid the memory. Writing a hard word two or three times is a capital way of assisting the mind. After you are fully master of this first name, you will find it more easy to learn the next; and you will succeed still more readily in your third attempt. Thus imperceptibly, and without any extraordinary exertion, the memory will soon get accustomed to this kind of exercise. Fortunately for the student in these days, every facility which learning and ingenuity can suggest for acquiring a knowledge of the names and properties of plants has been made available for his use. Plants are now arranged in natural families, or tribes, so that when one knows an individual of any one of these tribes, all the others belonging to it, having a family likeness, may easily be comprehended in a general way, and this is a great assistance to the memory in acquiring their names. All animals are classed in the same way; and let us take an instance to shew how this arrangement assists us in finding out the names of things. Suppose one of your friends had been to see a collection of wild animals, and told you he had seen among them a "fierce-looking beast;" you could not possibly understand from this description what sort of an animal he meant, or how its fierceness manifested itself: he might even tell you the name of it was *Leo Africanus*, and still you would have no clue to guide you as to the aspect or form of the creature, if you never heard that name before. But if he were to tell you it looked like a huge cat, you would immediately form a distinct idea of the shape, look, and general appearance of the brute; and why? because *pussey* is already so familiar to you. If you were then told that *Leo* meant a lion, and *Africanus* Africa, you would have the whole mystery cleared up at once: the fierce-looking beast turns out to be the African lion; and it further appears that the lion belongs to the same tribe

as the domestic cat. Now all the difficulties about the outlandish names of plants may be got over, with a little management, much in the same way. Take, for example, the corn-flag,—three kinds of which I recommended so strongly in my last letter. If you should only know the common one that blooms so gay in every old garden in the country about the beginning of June, you have a clear idea of the look and form of all the other corn-flags, which are very numerous, and not only to that, but of a host of other plants that belong to the same tribe, notwithstanding that their general appearance varies considerably. The greatest part of them, however, have their leaves sharp-pointed and flat, like a two-edged sword; one of the edges being always turned towards the flower-stalk, which rises from among the leaves as if issuing out of a double sheath.

Before I dismiss the subject of corn-flags, let me remark to such of my readers as are not acquainted with such matters, that if it were possible to destroy all the beautiful corn-flags that have been originated in this country and on the Continent by cross-breeding for the last thirty years, the whole of them, and many more besides, might easily be reproduced in three or four years by a judicious mixture of those three kinds I recommended, with the assistance of one other species, which is less generally known, and called *Gladiolus tristis*—"the sad corn-flag." Here, therefore, is an encouragement to begin cultivating these beautiful plants. There are upwards of two dozen more species of corn-flag found wild in South Africa—all pretty in their way—but the great accession to the family by cross-breeding having thrown these into the shade, I need say no more about them. Of the more recent seedlings that deserve general cultivation, the following half-dozen are the cream. I am told, however, that there are a few raised within the last three years still more handsome; but not having seen them yet, I cannot say what they are:—*Gladiolus Ramosus*, "branching corn-flag," was mentioned incidentally in my last letter; *G. Insignis*, or "beautiful" corn-flag; *G. Formosissimus*, or "most beautiful;" *G. Speciosissimus*, or "most showy;" *G. Multiflorus*, or "many-flowered;" and *G. Gandensis*, or "Ghent corn-flag." A large potful of each of these would make a gorgeous display for two months on a balcony or under a veranda, or indeed anywhere.

IXIAS.—The next family of Cape bulbs that deserve special notice are the *Ixias*. They also belong to the same tribe, and may be said to be corn-flags in miniature, but with several shades of colour and markings not to be met with in the corn-flags. They are so numerous that it was found expedient to divide them into several groups, under such names as *Sparaxis*, *Babiana*, *Tritonia*, &c.; but for practical purposes we may set them all down as *Ixias*, without loading the memory with such hard names. It is the *Ixias* and two or three other families which give an indescribable charm to the vegetation of our Cape colony during the rainy season, when they issue forth, as if by magic, over the great plains which a few weeks before were hard-baked and sterile as a desert. Their little bulbs are enabled to bear the greatest hardships in those hot regions. During the dry season the earth in which they grow is reduced to the hardness of brick; hence the reason why it is so difficult to dig them up, except in the rainy season, when they are growing, and in the worst condition to be moved. They begin to grow with us in the autumn, which corresponds with the spring in Africa, and they are so hardy that they only require the protection of a cold frame through the winter. It is very interesting to attend

to all these bulbs, which grow slowly all the winter; one can mark their progress from week to week, while other plants are at rest. Then they take up so little room that a one-light box would hold several dozens of them, and their pots need not be larger than six inches across. These pots will hold sufficient soil for half a dozen bulbs; for in their native country they receive the most scanty nourishment from the ungenerous soils of the Karroos, as the great African plains are called. Therefore it is that strong feeding is averse to them by nature. Almost all gardeners renew the soil for them every autumn, at which time they shake them from the old soil, and repot them in fresh mould. This is not at all necessary, for they will flower just as well, and look as healthy if they are only fresh potted every third or fourth year. I once, as an experiment, kept some of them six years in the same soil, and I could see no difference between them and others more frequently repotted. I used to scrape away an inch of the surface soil down to the tops of the bulbs, and add fresh soil in its stead, and that was all the assistance they had during the six years. When we know the conditions natural to any set of plants in their native country, we are never much at a loss to know the right way to treat them artificially, although we may not be able to follow out strictly those conditions. Formerly there were some elegant Cape bulbs belonging to this tribe in our gardens that are now lost, and I am persuaded the reason why they were unable to bear our treatment was our pernicious habit of shaking them out of the soil, and keeping them in boxes and drawers while they were at rest; then giving them damp soil at potting time in the autumn, and as a climax to our bad practice, they were watered immediately after being potted; for no gardener thinks he has done justice to a new potted plant till he has given it a good dose of water! It is only by owning these our faults that we may reasonably expect to improve our practice. Now our practice, in this instance, is much at variance with the natural conditions under which these *Ixias* exist in Africa. When their leaves die down on the return of the dry season, their little bulbs are covered with a thin crust of sun-burnt earth, whilst the heat of an unclouded sky, and almost a vertical sun, plays over them for six or seven months running; so that you might think they would be baked like potatoes in an oven, instead of which this extreme dryness seems indeed to be necessary to their well-being. On the return of the periodical rains, these bulbs can only be gradually moistened; they then swell by degrees, and at last shoot forth so simultaneously that the parched plains become at once the seat of a charming vegetation. Now to imitate this state of things, as soon as the tips and edges of the leaves turn yellow—an unfailing indication that a bulb seeks repose—we should withhold water by degrees, till the leaves finally die down; then, instead of shaking the bulbs out of the pots to be exposed to our damp northern atmosphere, let us place the pots in the very hottest place within our reach; a top-shelf in a greenhouse, or back-shelf in a pit, close to the glass, is the best situation; next to that, the leads over a balcony, or on the outside of any spare window facing the south. Gardeners make use of their walls for such purposes, and would say, place them "under a south wall." Whichever place is most convenient, let the pots be turned down on their sides, the mouth of each facing the south, and there let them "summer" till the end of September, and you need have no misgivings about their being roasted; our climate forbids that. In September, let the pots be turned upwards,

and let the autumnal rains give them the first two or three waterings; at least, be in no hurry with the watering-pot, for if no rain falls the air at that season will be damp enough to affect them and the soil also, and they will spring up immediately. When their leaves appear go over them, and with your forefinger take away the surface-soil till you see the bulbs, and replace it with a fresh supply of soil. They should now be put in a sheltered place in the open air, with coal-ashes under the pots to keep down worms and to allow a free drainage in case of heavy rains. Leave them out as long as the frost keeps off, and when they are put under shelter let them have abundance of fresh air every day, except in very frosty weather. A cold pit, without a flue, is the very best place to keep them in all the winter and spring, till they begin to flower, as when a fine day or mild weather occurs, the light may be drawn off all day, and put on at night. The pots should stand within ten inches or a foot of the glass, and be plunged to their brims in sand or finely-sifted coal-ashes. Double *dry* mats will protect them from ordinary frost; and in very severe weather additional covering of straw, fern, or some other fitter, must be added. Hundreds of plants would live over the winter in such a pit, and with that management. All greenhouse and window plants would answer that way, provided they had head-room enough; but I should make it a condition that the pots did not stand more than twenty inches from the glass, if possible, and that the top of the tallest plants not nearer than three inches to the glass. But I must finish what I mean to say about these *Ixias*. They require peat-earth to grow in; nothing else will do for them under cultivation. It is true that gardeners can grow many of the sorts in light composts, but gardeners can do many things which would be imprudent for others to attempt; and if they happen to kill a plant now and then with their fancies, they know where to lay their hands on another to fill up its place. No fancies, however, for him who must put his hands into his own pocket to replace his mishaps. No.—turfy peat ours must have, and chopped quite small with a spade, but not sifted; good drainage, also, and the bulbs placed one inch beneath the surface; and there are so many of them that dislike to be suddenly watered when they are in this dry state, that I think the safest way would be not to water them at all when fresh potted. Let the soil be moderately damp, and the bulbs will imbibe sufficient moisture from it for the first ten days, and by that time they will have made a few roots, and may be gently watered or left out of doors to be first watered by the rains.

I have not been led into these long details for the sake of the *Ixia* tribe only—as few plants are more easily managed than they are—but because there are a host of other beautiful greenhouse bulbs to which these remarks are nearly equally applicable. Among these are bulbs from the highlands of Mexico, Peru, Chili, and the Brazils; and, indeed, from the temperate regions on either side of the Great Andes chain of mountains, to say nothing of many others from similar parts in the old world, which are sadly neglected, either from not knowing of their existence or how to manage them when we have them.

I am unwilling to load this long letter with many hard names, otherwise I might easily give a long list of very beautiful *Ixias*, and, probably, I may do so some of these days; at present, I shall only mention a very few of them, but you will be at no loss to procure good ones at the nurseries, as they only grow the best sorts; and I have known half a dozen pots of them bought for a mere trifle. Another way one might get

a great quantity of them is by buying a sixpenny or a shilling packet of mixed seeds of them. They may be sown now or any time till the beginning of March. Peat-earth is essential for getting the seeds to grow, and you must add a little sand to it; a quarter of an inch deep will be enough; and you may water them as soon as they are all sown. The best sized are six-inch pots—that is, six inches over the mouth. Sow thin, as there will be no occasion to disturb the seedlings till they flower, which they will do the second season. When the leaves of the seedlings turn yellow, put the pots on their side as for the parent bulb, and afterwards treat them similarly. I ought to tell you, perhaps, that the seedlings will come up first just like barley, and you might think you had a potful of grass in place of *Ixia*. The first *Ixia* that you should try to get is the “Green-flowering” (*Ixia Viridiflora*); and if you get it into blossom before your neighbours, you will have all the people in the neighbourhood come to see it; for there is not another flower in the world like it, and I am sure you can buy a pot of it for less than a shilling, and a single root much cheaper; so that it is everybody's flower, and every cottage window in the kingdom is good enough to grow it in. If the roots are strong, it will grow eighteen inches high; first, somewhat like a young stalk of wheat, and then come the flowers in great numbers. The colour is a kind of sea-green, and a large jet-black eye in the centre of each flower. The next *Ixia* has two other names—*Sparaxis Grandiflora*—long enough at any rate, but not difficult to remember; for *grandiflora* is nearly an English word, grand-flowered; you will often meet with the name *grandiflora*, so you had better learn it at once. As to *Sparaxis*, you may or may not learn it, as you like; but *Ixia* will answer our purpose just as well, and I shall always call the *Sparaxis* an *Ixia* after this. This grows only nine inches high. The flowers are large, as the name implies, and are of a beautiful mixed colour, chiefly purplish. *Ixia Patens* (*patens* means spreading out): the flowers of this sort are splendid crimson. They spread wide open, and is the first of them to come into blossom in April. *Ixia Aulica*, or the Courtly *Ixia*, is another beautiful one, with brilliant rose-coloured flowers; and so is *Ixia Incarnata*, or the flesh-coloured. It has large pink-flowers, often richly marked with dark-coloured veins or stripes.

D. BEATON.

THE KITCHEN-GARDEN.

SHELTERING.—The season is now arriving when protecting vegetables, herbs, &c., must be attended to, or the table will be scantily supplied in a needful season. Cauliflowers, brocolies, at this time, if at all turning-in (coming to a head), should be secured by being pulled up, and hanging in dark sheds, cellars, or other suitable places. If these are not at command, let the plants be taken up and placed in sheltered corners, or in trenches thrown out deep enough for each side bank to protect them when laid in thickly; these banks will support poles placed across to keep up mats, pea-haulm, straw, evergreen boughs, or other protecting litter. Lettuces, endive, and newly turned-in cabbages, may be protected in a similar manner. To find shed-room, by some, is considered a difficult matter; but, as I have often observed, where there is a will, oftentimes there may be found a way. At this season of the year, when thinning and pruning of shrubberies, the refuse may be bound in flat fagots, the same size at both ends, with two

withies: also in hedge-trimming and wood cutting, the brambles, furze, &c., may be saved and turned to the same account, for forming the wall and covering the roof. Some strong stakes or rough scantlings may be used for framing the shed, and a thin coat of reeds, rushes, or straight straw placed on the roof for making it water-proof. Where clay, marl, or stiff soil abounds, it may be puddled,—short grass, hay or straw-chaff, being well mixed and incorporated with it, which will hold it well together; and walls may be formed of any dimensions with such materials, with the trifling expense of labour only. We have run up many a shed in haste formed of various materials, and experienced their usefulness for storing winter vegetables and cultivating the mushroom. Where heath, furze, or fern abound, it may quickly be turned to valuable account for the like purposes.

BEANS AND PEAS.—A few early beans and peas may be sown in shallow boxes or pans, and placed in any sheltered convenient situation in a house, pit, frame, or out of doors, in a place to be sheltered or covered when requisite. The plants they produce are for transplanting, or making up any gaps that may have been made in the early sown-crops by vermin or weather. Those beans and peas already up in rows should be attended to, by sowing amongst them dry dust of any kind, or charcoal-dust.

SEEDS REQUIRED.—The season now advancing, it will be needful for us to think about our seed-list for the ensuing year. Having made all possible speed in the way of manuring and trenching all spare ground, and made up our minds generally how and what we intend cropping with throughout the ensuing season, let us see how we can manage to crop in succession, to furnish the table bountifully throughout the year, whether in the humble cottage, or the noble mansion, and yet with economy. Long practice has taught us, that it is not the large quantity of seed, or the multiplicity of varieties procured, that will insure a bountiful supply daily throughout the year, but the due selection of varieties, to which some variation, of course, is needful. As respects soil and locality, the working the soil into a healthy condition at all times and seasons, the due selection of sowing and planting seasons, and the after-management, all combined methodically together, has something to do with insuring those matters; consequently we will endeavour, after giving a list of a few good and proved varieties of vegetables, and after making a few practical remarks on them, to point out the season as it arrives for seed-sowing, planting, and insuring good vegetables in succession.

ASPARAGUS we need say little about, it being so generally known and appreciated, as an excellent and wholesome vegetable. There is a difference as regards colour; one variety being bright green, and the other a lighter colour, or brown. To procure a succession of good and large shoots, seeds of either variety should be sown on well-prepared rich soil in April; if in a seed-bed, one foot apart in drills; but if to remain permanently where sown, it should be in drills two feet apart, and the seedlings thinned out to one foot from plant to plant. At the age of two years, every alternate row must be taken up; those removed being, if well managed, good plants for forcing; the remaining rows four feet apart; which space is a good situation for summer-growing cauliflowers or brocolies, it being partially shaded. Our permanent rows of asparagus at Bicton are always four feet apart, and the quantity of fine shoots thus produced is astonishing. If transplanted, our practice is to plant in April, when the young shoots are three or four inches long,

and these, called the crowns, are kept to the surface of the earth when planted; and when ripened in October, and cut down, we cover the earth's surface with two or three inches of good manure of any kind, if it can be procured, or decomposed short grass, or other vegetable matter, and fork it in carefully in the month of March; never covering the crowns by casting up the earth. All is level, and with a coat of manure annually the crowns get sufficiently protected, as we find the shoots most liked when tender and green from bottom to top, so that the whole, or nearly so, may be eaten. The first preparation of the soil for planting asparagus should be well attended to; for on laying a good foundation depends the future produce being good in quality and quantity. Our practice is to select a piece of ground that has been for years well trenched, manured, and worked about for other crops, and apply all the manure we can possibly spare, refuse, and decomposed vegetables of any kind, trenching the ground three feet deep, if suitable soil can be found at that depth, and forking up the subsoil, and letting it remain; taking an early opportunity in autumn or winter for performing it (the present month being a good time), and turning it back twice, if possible, previously to the month of April. We will incorporate the whole together, the same way as one would a compost heap, and at all times forming as much as possible of the surface-soil into ridges, for the frosts and air to penetrate. Asparagus is also fond of salt, which we apply in a liquid state, with manure water, in the height of the growing season (April and May), at which time we find it of most benefit. Those matters, however, will be noticed as the seasons arrive.

BEANS (True Early Mazagan).—One planting is sufficient, except by those who like a small bean in preference to a large one. It is generally a good cropper, and branches well from the earth's surface, if allowed room enough. We prefer, for all kinds of beans, planting in single rows; they being so much benefited by the influence of the sun and air. When so grown they branch out luxuriantly, and pod to the very bottom of their stems. The bulky crop we thus obtain is surprising; and by running a few rough stakes along the row, and a piece of rope-yarn on each side of the row, bringing the yarn from both sides to the same stakes, which are placed at about twenty feet intervals, the wind and wet does not baffle them about, and a shelter is formed for neighbouring crops. The True Long Pod, Windsor, and Green Seeded Beans, are the best varieties to follow in succession.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

APPLE-TREES FROM CUTTINGS.

It is known to many horticulturists, but unknown to the public generally, that branches of some apple-trees strike root as readily as willows, and beautiful specimens of little trees they become. Last February I inserted cuttings of an American Codlin, not mere shoots, but well furnished branches, in a north border, and the strongest of them are now well rooted, full of blossom-buds, and will, I doubt not, bear fruit next summer. A friend, too, has just sent me Manx Codlin-trees, as large as little gooseberry-bushes, which were

struck from cuttings, taken at the time above mentioned, and now having abundance of roots and blossom-buds. Although these trees may be encouraged in their growth to become as large as if grafted on young stocks, still they may be kept, by planting and root-pruning, after the method of your excellent coadjutor, Mr. Errington, to any size desired—as pot-plants for the curious, or as miniature trees, that would not be very inconsistent ornaments even in the flower-garden.

B. MAUND, *Brooms Grove.*

GOOSEBERRIES.

I OBSERVE noticed, in page 40 of the "COTTAGE GARDENER," an assertion by the *Midland Florist*, that the London, Companion, Gunner, and Eagle varieties are the four best ever seen, but which I do not think is the fact.* The red berries up to the present time have always proved the largest, and the one called Wonderful has produced fruit weighing 33dwts. It is hardy, a free grower, and an abundant bearer, and is therefore highly deserving of a place in every cottage-garden. The London and Companion (reds) have weighed this year—the former, 31dwts. 19grs.; the latter, 28dwts. 3grs.; and are also well worthy of the cottager's cultivation. The variety called Thumper (green) is also deserving of notice; it has produced fruit this year weighing 30dwts. 9grs. It is a fact, however strange it may appear, that the green-coloured gooseberries require less sugar for making into tarts than the red. The newest yellow berry this year is called the Catherine, its fruit weighing 30dwts. 15grs., and the newest white is the Freedom, weighing 28dwts. 1gr. These improved varieties are obtained from seed, and if only one in a thousand succeeds, it is well worth the pains; the fruit upon such trees having the appearance of large and delicious plums, contrasted with the old varieties, which look, in comparison, no larger than grey peas. The large ones, too, come in earlier in the spring than the small ones for culinary purposes, and are also far superior for preserves, for which purpose they should be taken from the trees when they are beginning to ripen, sliced into a brass pan, and boiled about an hour. Then put to each quart of the sliced berries one pound of loaf sugar, and boil them another hour, when the whole will be reduced to a jelly, and must be put into jars for keeping, either for tarts or to spread upon bread instead of butter.

In propagating these varieties from cuttings, a little moss put to the end of the cutting has a great effect in assisting the formation of the roots. They should be placed in shady situations, and kept well watered during the summer.

M. SAUL, *Garstang.*

* Our correspondent, upon referring to page 40 again, will see that the varieties he mentions are only named as among the best.—Ed. C. G. 20 dwts., or pennyweights, make an ounce.

TO CORRESPONDENTS.

SOWING HIMALAYAN PUMPKIN (*F. Dodd*).—The best mode of raising plants of this is by sowing the seed in a gentle hot-bed, and with the shelter of a frame and glass, early in April. The seed may be sown in the open ground at the end of May, in the place where the plants are to remain.

A COTTAGE FARM (*Comfort and Economy*).—As you require a locality with cheapness, nearness to the sea, and a bracing air, we should recommend you to look out on the coast of Wales, or north coast of Devon. Advertise for such a farm as you require in some Devonshire or Welsh newspaper circulating in the neighbourhood you pitch upon.

POTATO-GROWING (*Rev. F. A. S.*).—We cannot agree with you in advocating the discontinuance of potato-cultivation, for we believe

that with proper precautions it is a safe crop, safe to produce a larger amount per rod of preservable food than can be obtained from any other crop, even though every soil would grow, like yours, forty tons of carrots per acre. This is a very large produce. The penstemon will be noticed in its planting season.

IVY (*Rev. C. C. W.*).—We will take an early opportunity to advocate your taste; it is our own likewise. We love "the ivy green." Thanks for your cheering us on.

SALT, SOOT, AND LIME (*Ebor*).—You will find full directions for applying salt as a manure at p. 54 of our sixth Number. There is some information as to soot at p. 72 of Number seven; but upon this, as well as upon lime as a fertilizer, we will give copious directions ere long.

DRAINAGE FROM PIGSTYE (*Ibid.*).—It is scarcely possible to give you directions as to the amount of water you should mix with this. In rainy weather it is weaker than in dry weather. In general, one bucketfull mixed with two or three buckets of water will be strong enough for applying to growing plants in your kitchen-garden, such as Brussels sprouts, savoys, spinach, &c. When your supply is larger than you require for them, we know of no better mode of saving it than pouring it over a heap of coal-ashes or earth mixed with gypsum, and kept under a shed. The watery particles will evaporate, but the fertilizing and ammoniacal parts will be thus retained until required for manure.

RHUBARB AND JERUSALEM ARTICHOKE (*Maidstone Subscriber*).—We will give you full information on these in due course.

PENT-ASHES (*A Subscriber, Wigtonshire*).—These ashes are an excellent top-dressing for lawns, and are very good manures for turnips, cabbages, potatoes, and peas. Pent-ashes contain a little charcoal, gypsum (sulphate of lime), Glauber salt (sulphate of soda), common salt, and chalk (carbonate of lime), all useful as fertilizers.

FLOWERS FOR EXHIBITION (*Un Francoise*).—Every cultivator of flowers knows the time at which a flower naturally blooms, and, accordingly, if he wishes it to do so a month or more earlier, he starts it so much earlier in the spring, by putting it into a gently-heated house, and takes care to keep it afterwards growing freely and unchecked. If, on the other hand, he wishes to retard the blooming, he keeps it in the cold, and uses other means to render its progress slower and more gradual.

AZALEAS (*Ibid.*).—Indian Azaleas are propagated by seed, which they ripen in February, and should be sown in March. American Azaleas are propagated by cuttings, taken off close to the stem. The proper time is May. Young shoots, about two inches long, must be employed. Plant them in moist sand, and turn a bell-glass, or even a common tumbler, over them.

ROTATION OF CROPS ON ALLOTMENTS (*Rev. J. W. R.*).—The directions we have given at p. 51 of our fifth Number will apply to this subject. We will, however, give some separate observations, and then see whether we cannot carry out your other suggestions.

THE LATE PRESIDENT OF THE HORTICULTURAL SOCIETY (*A Neighbour of Downton Castle*).—Thanks for pointing out the printer's error in our 86th page. We well know that Mr. Knight resided in Herefordshire, and not in Hertfordshire, as there printed. Mr. Knight, in a letter addressed to the Editor, some years since, says, "Being born in the midst of orchards, I was early led to ask whence the varieties of fruit I saw came, and how they were produced. I could obtain no satisfactory answer, and was thence first led to commence experiments, in which, through a long life of scarcely interrupted health, I have persevered, and probably shall persevere, as long as I possess the power."

TREES GRAFTED LAST MARCH (*B. C.*).—You may move these now without any injury to them, if you are particularly careful not to shake them violently, so as to disturb the scions (grafts). The parts where these are united to the stocks are yet brittle. Every care should be taken, also, to injure the roots as little as possible. Dip the roots into a thick puddle of mud, made of earth and water, immediately they are taken up. This keeps their bark from getting dry during removal.

CYCLAMENS (*A Subscriber, Bath*).—The Persian Cyclamen is retailed in all the London seed-shops, at one shilling each. Not many years since the same cost half-a-crown.

CAMELLIAS.—(*S. C.*).—Camellias may be preserved through the winter in a room with one or more windows facing any aspect; they do not require a hothouse at any time; they are easily reared, and not at all uncertain plants to flower. Keep them moist at all seasons; and in spring, when they are making their growth, water them every day, and see the pots are well drained.

IVY (*J. G.*).—Lose not a day in planting slips of this beautiful evergreen. Cut the young branches into lengths, about six inches long, and leaving four joints, as well as some of the root-like fibres by which they attach themselves to walls. Remove the leaves from the three lower joints, and plant in a north or other shaded border, burying the three lower joints in the soil. They will be strong, well-rooted plants by next autumn, and ready for removal. If the place where you require the ivy has a north aspect, or is well shaded, you may plant the cuttings there at once.

HOLLY (*J. Benson*).—The best time for cutting holly-hedges is early in the spring, before they begin to shoot. At the end of February is a good time. Never use shears in trimming the holly; you will find how its health and beauty are improved by cutting-in each superfluous spray with a sharp knife.

PANSY-SOWING (*Rev. G. Griffith*).—Some directions relative to this will soon appear in our weekly "Flower-garden."

WEEKLY CALENDAR.

M D	W D	DECEMBER 21—27, 1848.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
21	TH	ST. THOMAS. Shortest Day.	Sparrow-wort.	6 a 8	51 a 3	3 35	26	1 27	356
22	F	Snow-flake & Wild Swan come.	Transparent heath.	7	51	4 36	27	0 57	357
23	S	Sun's dec. 23° 27" S. Orange-breasted Goos. [ander comes	Cedar of Lebanon.	7	52	5 36	28	0 27	358
24	SUN	4 SUNDAY IN ADVENT. White Nun comes.	Frankincense Pine	8	52	6 33	29	bef. 3	359
25	M	CHRISTMAS DAY. Chaffinches in flocks.	Holly.	8	53	sets.	30	0 33	360
26	TU	ST. STEPHEN. Scaup-duck comes.	Purple Heath.	8	54	5 a 8	1	1 3	361
27	W	ST. JOHN EVANGEL. Black Diver comes.	Flame-coloured Heath	8	55	6 6	2	1 33	362

ST. THOMAS the apostle, surnamed Didymus, or the Twin, is believed to have preached the Gospel in Hindostan, or India, and to have there been killed with laoces at the suggestion of some of the priests of Brahma. It is an evidence in support of the opinion that St. Thomas visited India—that when the Portuguese discovered Malabar, they found there a district inhabited by native Christians. Most interesting particulars concerning them are in Dr. Buchanan's "Researches in India."

CHRISTMAS DAY.—

"England was merry England when
 Old Christmas brought his sports again.
 'Twas Christmas broach'd the mightiest ale—
 'Twas Christmas told the merriest tale:
 A Christmas gambol oft would cheer
 A poor man's heart through half the year."

And why should it not now?—Why should not

"All hail with uncontrol'd delight
 And general voice the happy night
 That, to the cottage as the crow,
 Brought tidings of salvation down?"

We know of no reason why all should not be as merry, and joyous, and grateful, as our forefathers were. We have even greater bless-

ings than they had, and we have the same sure and steadfast hope. We can only briefly add, that if the proprietors of the soil would more generally allot to every cottager a helping plot, and if every cottager would cultivate his plot more judiciously, there then would be throughout the length and breadth of the land the diffused plenty, helping to realise that merry, happy Christmas, which we heartily wish to every reader.

PHENOMENA OF THE SEASON.—One of the most particular occurrences among animated things at this season, is the arrival of the various water-birds upon our coasts. The various species of wild duck, goose, diver, &c., appear almost at one and the same time. They come from more northern countries, where the severity of the season now renders food for them difficult to be obtained. The distance over which these water-fowl travel, and in a short space of time, is very great. There is a small duck, about the size, and marked much like a pigeon, so abounding near the Cape of Good Hope as to be known to sailors by the name of "The Cape Pigeon." One of these was caught by the writer of this, on the 23rd of July, 1842, in lat. 34° 41', long. 22° 52'. It had a button of the 78th Regiment fastened to its leg by a piece of wire; and a notice of this being given in a London paper, an answer was sent, stating that the button had been so fastened by an officer of the regiment a few days before, and when at sea 1,500 or 2,000 miles from where the bird had been caught a second time.

INSECTS.—At the end of this month, especially in the south of England, is found the somewhat rare



Yellow-line Quaker Moth (*Noctua Flavilinea* of Haworth and other British authors). It measures about an inch and one-third across the expanded fore-wings, the ground of which is of a reddish colour, with the ordinary streaks very indistinct, and with the middle ear-shaped marks slightly distinct, rather distant, and rather yellowish. A black spot is on the hind part of the hind one in most specimens, a black dot near the base of the wings, and a nearly straight reddish slender streak near the wing's outer part, and angulated near the fore margin, where it is rather obscure, and outwardly edged with a pale yellow line—whence the English name. The hind wings are dark brown, with the fringe reddish. The caterpillar is found in the spring, and feeds on the plantain and chickweed usually, but we have found it on some of the cultivated pimpernels.

DECEM.	1841.	1842.	1843.	1844.	1845.	1846.	1847.
21	Frosty.	Fine.	Fine.	Fine.	Cloudy.	Rain.	Cloudy.
Highest & lowest temp.	35°—26°	54°—48°	50°—42°	37°—30°	39°—28°	49°—25°	35°—31°
22	Cloudy.	Showery.	Fine.	Fine.	Showery.	Fine.	Cloudy.
	37°—33°	54°—46°	52°—42°	35°—27°	46°—34°	49°—26°	36°—31°
23	Showery.	Showery.	Cloudy.	Cloudy.	Cloudy.	Rain.	Cloudy.
	46°—27°	46°—31°	56°—48°	34°—23°	44°—31°	39°—34°	39°—32°
24	Showery.	Fine.	Fine.	Cloudy.	Fine.	Rain.	Cloudy.
	50°—42°	50°—25°	55°—46°	34°—31°	43°—24°	35°—26°	40°—35°
25	Showery.	Frosty.	Cloudy.	Cloudy.	Showery.	Frosty.	Cloudy.
	49°—22°	50°—48°	52°—35°	35°—31°	48°—34°	34°—19°	41°—35°
26	Fine.	Cloudy.	Showery.	Cloudy.	Cloudy.	Frosty.	Cloudy.
	39°—24°	51°—41°	46°—41°	39°—36°	50°—37°	37°—21°	40°—30°
27	Frosty.	Showery.	Cloudy.	Cloudy.	Fine.	Frosty.	Cloudy.
	36°—25°	47°—25°	45°—33°	38°—30°	52°—41°	38°—23°	37°—30°

No notion is more erroneous than that entertained by many, that neatness and embellishment are necessarily expensive; that a labouring man must be dirty, and his cottage must be unadorned, unless more money is spent, to prevent these disagreeables, than either he can afford or than others would be justified in employing to prevent them. These opinions are totally incorrect, and, like everything else that is not true, they are very mischievous opinions.

All who are acquainted with country life know that every cottager of good character, and blessed with an undutiful wife, is never either dirty or untidy. On this subject we do not here intend to insist,

for it comes scarcely within the province of the COTTAGE GARDENER; but the adornment of the cottage does—and how much can be done in effecting this, for very little money judiciously spent, every one of our essays on window and flower-gardening has shewn, as well as did the true history of Britton Abbot, in our 17th page, illustrate.

No cottager would have a bare unadorned dwelling if once convinced of the importance of having it covered with evergreens and climbing flowers—the importance, for his own character's sake, because many less wiser men than Solomon conclude, and usually truly conclude, that the garden "all grown

over with thorns and nettles," and the neglected "wall," bespeak a tenant "slothful and devoid of understanding" (Prov. xxiv. 30). But the importance of having a neat and well-garnished cottage is not confined to the credit it reflects upon the labourer who inhabits it—for, beyond all doubt, it has an influence over the future lives and characters of his children. Every one of Britton Abbot's sons and daughters endeavoured to obtain comfortable and trim-kept cottages—they had been accustomed to the neat and the beautiful, and they shrunk from descending into untidy and carelessly-kept hovels. Man, it has been well said, is a bundle of habits; and no habit is more inveterate, when once acquired by a child, than a love for order and comfort—and it is a habit which goes far towards making that child respectable and happy in after-life.

Usually the outside of our country cottages—and we must confine ourselves to this—is bare, desolate, and neglected; whereas for the smallest outlay, or rather without any outlay at all, these cottages might be clothed with a never-failing leafy ornament, equalling in beauty any that the most lavish expenditure could obtain,—we mean the Ivy.

If we chose to ask for public attention to an example, we could direct it to the two-roomed cottage of a widow in Berkshire, so enveloped in this British evergreen as to look like an ivy-bush pierced with two lattices and a doorway. It is the result of her own exertions and her own taste, and forms one of the most beautiful objects—the very perfection of a snugger—with which the eye can be refreshed.

Some persons will object that ivy makes a house damp; but no objection can be more groundless. That widow's experience, and the experience of every one who has had either a house or shed mantled over with ivy, agree in testifying, that an ivy-covered building is always dryer and warmer than one that is not so clothed. Nor could it be otherwise, for the leaves of the ivy, glossy and compact as they are, throw off all rain, snow, and hail, and prevent even the winds from cooling the walls. Other persons may object that the fibres of this "rare old plant" injure walls; but this objection is as groundless as the other. We can point to the Westgate and houses in Winchester and elsewhere that have been overgrown with ivy for centuries; and when by the force of the wind, or other accident, a part of it is torn down, the brick-work and the mortar it had covered are invariably more perfect, because less weather-beaten, than such neighbouring parts as had not been protected by the "ivy-green."

On all the reasons we have assigned, and on others which we could advance if we had more space to occupy in our columns, we say to every landlord and to every labourer, PLANT IVY ROUND YOUR COTTAGE WALLS. You may plant at once, following the directions we gave to a correspondent in our last Number;

and we know that if you do, you will one day thank us for adding to your comfort and your respectability. Most sincerely do we wish that our recommendation may be adopted, for we know those consequences would follow; and we also feel, to quote the words of the rector of Whittington, that then "many villages would be converted, from being positively ugly places, to prettiness itself."

THE FRUIT-GARDEN.

PRUNING THE PEACH AND NECTARINE.—In our younger days we can well remember what a ceremony was made over peach-pruning. The blue-apron gentlemen of the olden time, who loved a little mysticism in their movements, would look as grave over this proceeding as though the fate of nations was involved in the motions of their pruning-knife. Things have taken in these days another and a better direction; modes of pruning, considered in themselves alone, are thought of little avail, unless a proper action of root be maintained, and the ripening of the wood thoroughly carried out. Still, however, the pruning of the peach and nectarine is a matter of some import; after the above great principles have been secured, pruning is, of course, next in consequence, or nearly so, especially as not only the fruitfulness but the symmetry of the tree, and the equalization of the sap are in some degree influenced by it. We will, therefore, endeavour to remove some of the mystery from this delicate process.

To understand this operation the better, it will be well to state what are the prime objects, viz. :—

First—To *thin out*, or remove, superfluous shoots, in order to insure sufficient light and a due circulation of air to the remainder.

Secondly—To *shorten back*, for the twofold purpose of removing unripe or immature portions, and of inducing plenty of successive shoots lower down the tree.

For illustration, we will suppose an established tree, which has been planted five or six years. The nails being all unloosed, excepting a few to hold the principal shoots, operations should commence at the bottom of the tree, near the collar.* Here it is that a watchful eye must be keenly exercised at each returning pruning season, in order to preserve and continue a due succession of rising shoots from the lowest portion of the tree. It is evident, that if the young shoots at this point are not taken care of, the lower part of the tree will become barren, and a part of the wall wasted: besides which, the tree will not be so ornamental. It frequently happens that some of the young shoots in this part are inferior in character; and very frequently shoots which spring from the collar, and reach a yard or so, possess a fine young shoot lower down, which is fitter to become the leading shoot of that portion of the tree than the one already existing. When such is the case, it becomes necessary to cut away the older portion; this must be done with a clean cut, and nearly close to the point from which the future leader comes. However, the first point is to cut away any cankered or diseased shoots, and then to shorten judiciously those at the lowest level which can be obtained. It may here be observed, that no fruit should ever be permitted to grow for the

* *Collar*.—The place where the main stem begins to fork into branches.

space of a foot from the top of the collar on any given shoot. If fruit are produced at these lower extremities, they are always inferior, and they only serve to oppress a portion of the tree, which ought always to be kept as a nursery for young shoots, to keep the tree well furnished. By "shortening judiciously," we mean cutting back the lowest-placed young shoots *as low as possible*, provided a few good eyes, or buds, are left, and that such shoots are not required to fill existing blanks in the walls. Such then, when pruned back, may be considered a guarantee against the tree becoming "naked."

We come now to bearing-wood, and here the main point is selection, supposing there are more young shoots than are required. In making a choice, it is necessary to distinguish between the different kinds of young shoots; for, strange to say, there are at least three kinds of young shoots on many peach and nectarine-trees, and on most there are two.

We may characterize them as follows:—1st. Perfect bearing-shoots; 2nd. Exhausted shoots; 3rd. Barren shoots.

It will here be understood that the above refers merely to the *young spray*.

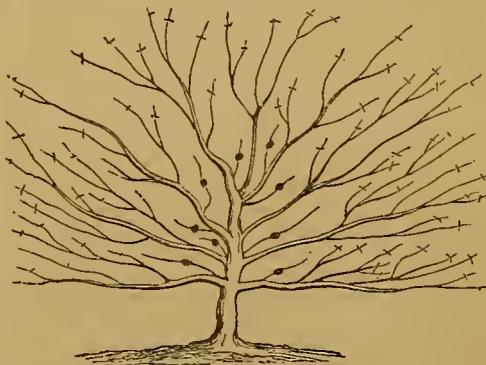
1. *Perfect bearing-shoots*.—These, in general, may be known by the majority of the eyes or buds seated on them being threefold, that is to say, in threes. When such is the case, the two outer ones are almost always blossom-buds, and the central one a wood-bud. All such is deemed wood of first-rate character, and it is the aim of the experienced cultivator to secure as much of this as possible.

2. *Exhausted shoots*.—We are not assured that this is the most proper title to give this class of shoots; one thing, however, we do know, that when such shoots begin to prevail generally over a tree, it is a pretty sure sign of what medical men would term a "breaking up of the constitution." These have for the most part a single bud at a joint, and that bud a solitary blossom-bud; such could not be readily distinguished in early autumn-pruning, by a novice, from the next class; and this is a reason why amateurs, who prune for themselves, had better defer it until the early part of February. Wood of this character, if left on the tree, has seldom vigour enough to produce fine fruit. Indeed such wood not unfrequently "sets" its blossom more freely than the preceding class; and it is by no means unusual, at the thinning period in the end of May, to meet with shoots of this class with a score of fruit on, yet no leading bud or growing shoot. These fruit exhaust the tree much, and eventually fall off.

3. *Barren shoots*.—These, again, possess solitary buds; they are, however, usually late growths, and may readily be known by their pale and unripe character; or they are the production of over-luxuriant trees, and serve to denote a tree of gross condition, or vigour misplaced. The difference between these and the preceding section is at once apparent at spring-pruning. The solitary buds of the former become very plump of a sudden, whilst these do not appear to increase at all. Wood of this character, if ripened, is frequently of eminent service, inasmuch as it serves to keep up the main fabric of the tree; and although not bearing-wood itself, it is capable of producing fine bearing-shoots at the end of the year. Some of this must, therefore, be occasionally reserved, especially if a blank or space bare of shoots in any part be anticipated; for, be it understood, much in peach-pruning depends on a far-seeing eye, or skilful anticipations.

We now revert to the pruning. The main business

is to reserve a series of shoots all over the tree of the class No. 1; and where this class cannot be obtained, to secure enough of No. 3; the No. 2 class may, in most cases, be considered a last resort. So much for selection. We must now advert to the shortening of the young spray. Only two reasons exist for shortening at all; the one is, where shoots overtake each other; in which case some must be made to retreat, or the tree would soon be all confusion. The other is founded on the necessity of removing unripe portions. The first case any mere tyro can judge for himself, the second requires some care. A little practice, however, will soon teach the uninitiated the difference between the two. The principal criterion is hardness. A practical man would soon distinguish them, although blindfolded, by means of his knife. Colour has something to do in this matter. Ripe wood is generally of a brownish colour—unripe, of a pale and delicate green. We would advise those who do not understand this, to request some gardener to give them a shoot or two of each character; and by the time they have exercised their pruning-knife in cutting these shoots to pieces, they will have learned this portion of peach-pruning. In ordinary cases, about one-third has to be cut away; nevertheless, it is not easy to lay down a general maxim as to shortening, for it becomes necessary, for the sake of successional wood, to shorten more severely at the lower parts of the tree, decreasing it in amount progressively upwards. We will now add a sketch, which may assist in illustrating the above description.



On referring to the foregoing sketch, it will be seen that the round black dots denote the lowest shoots on the tree to which we directed attention in the outset. The cross-marks, in like manner, denote the shortenings by the knife; and it must be remarked that these are *by no means opposite each other*, but at different distances. The due observance of this principle in shortening prevents much confusion—tending to keep the young spray about to be produced well divided.

In conclusion, we would remark upon the pruning or cutting-off of large limbs. We never take these away unless compelled by sheer necessity. The peach and nectarine are very impatient under such violent operations. Sometimes, however, actual decay of a branch takes place; and then such operations *must* be performed. The main business is to secure the wound afterwards: the admission of air and wet to the wound is ruinous. A kind of grafting-mixture, composed of cow-dung and lime, is very good: this should be fastened down with some waterproof material, and the whole tied tight. Upon all wounds on two or three-years' old wood we make a point of applying a good coating of thick white-lead. R. ERRINGTON.

THE FLOWER-GARDEN.

VARIEGATED PLANTS.—The colour that most predominates in the vegetable kingdom is green. That this is wisely ordered there cannot be any doubt. As all things were created for the use of God's noblest creature—man, the colour that best suited his sense of seeing is just the one which, generally speaking, clothes the earth. If we stretch the imagination a little, and suppose any other colour had been the prevailing one, what a dreary scene the world would have presented. Look through a piece of coloured glass, and it will be seen at once what the effect would be. Certainly the sight is novel, and for a time pleasing: but if the colour was universal and constant, the eye would soon be tired and oppressed by looking upon it. Let us think for a moment what colour would be a good substitute for green. Would the flaming red? No. Would the sombre black? Oh, no! Well, would the absence of all colour be desirable? Ask the natives of those regions where the snow never melts. Take a walk when the sun is shining through the fields covered with snow, do not the eyes of the beholder suffer for want of the pleasant green? The very idea of the pleasant green fields and woods is refreshing to the mind; how much more the reality to the eye. Therefore this delightful colour, so general, is the best. Yet if it had been quite universal, or all of one shade, we should have had no contrast to show its excellence and use. For this purpose we have the beautiful colours of flowers; we have the light greens of spring and the dark ones of summer, succeeded by the more sombre, but not less pleasing, tints of autumn. We have also the subject of our present consideration—variegation in the leaves of plants. Some physiologists consider the partial absence of green on the leaves of plants a disease. That it may be so in some cases is more than probable. That the absence of light will turn leaves yellow is well known, and in that case the plant is diseased; yet the *Aucuba Japonica* is never so finely variegated in the shade as when fully exposed to the sun. We have some variegated forest-trees that flourish quite as well and grow as fast as their verdant brethren. Leaving the question, then, as to whether variegation is disease or not, we wish to point out how very pleasing and desirable variegated plants are. They exhibit their beauties to the best advantage just at the season when the more gay colours of Flora have vanished from the garden. One of the most useful for thus ornamenting the flower-garden is the above-named *Aucuba Japonica* (what a pity it is that it has not an English name).* This elegantly-mottled shrub not only thrives in the gardens of the country, but flourishes better than every other shrub in town gardens, and in pots on the terraces and balconies of our streets. For these places it is invaluable: we have no other, whether green or variegated, that answers these purposes so well. The many varieties of striped and blotched hollies diversify the shrubbery and ornament the lawn at this season of the year in a very pleasing manner. Variegation is not confined to the colder climates of the earth, as the various-coloured leaves in our hothouses and greenhouses testify. Neither is this peculiarity confined to our shrubs. A considerable number of the more lowly herbaceous plants that are not woody plants have their leaves prettily striped. Those plants require no peculiar treatment,—the same soil and situation suits them as that in which the green ones

* *Aucuba* is its name in its native country, Japan; and we can only translate the two used by botanists—Japan *Aucuba*.

thrive: they can also be propagated as easily (excepting by seed). A collection of them grown by themselves is very interesting and pleasant to look upon. Below is a list of the most remarkable and beautiful of variegated trees, shrubs, and herbaceous plants:—

VARIEGATED TREES.	VARIEGATED HARDY HERBACEOUS PLANTS.
<i>Acer vulgaris variegata</i> . Variegated common maple.	<i>r. Alyssum saxatile variegatum</i> . Variegated mad-wort.
<i>Acer pseudo-platanus variegatus</i> . Common striped sycamore.	<i>r. Arabis bellidifolia variegata</i> . Striped daisy-leaved wall-cress.
<i>Esculus vulgaris variegatus</i> . Variegated common horse-chestnut.	<i>r. „ lucida variegata</i> . Striped shining-leaved ditto.
<i>Castanea vesca variegata</i> . Striped sweet chestnut.	<i>r. „ stricta variegata</i> . Striped upright ditto.
<i>Fraxinus excelsior variegatus</i> . Striped ash.	<i>Epilobium hirsutum</i> . Variegated hairy willow herb.
<i>Ulmus campestris variegatus</i> . Variegated English elm.	<i>Glechoma hederacea variegata</i> . Striped ground-ivy.
VARIEGATED HARDY SHRUBS.	<i>Iris punilla variegata</i> . Striped dwarf iris.
<i>Alaternus latifolia variegatus</i> . Variegated broad-leaved alaternus.	<i>r. Linaria cymbalaria variegata</i> . Striped cymbal-leaved toad-flax.
<i>Aucuba Japonica</i> . Gold-blotched Japan Aucuba.	<i>Melissa officinalis variegata</i> . Striped balm.
<i>Buxus sempervirens variegatus</i> . Striped box-tree.	<i>Mentha piperita variegata</i> . Striped peppermint.
<i>Daphne crocurna variegata</i> . Variegated trailing Daphne.	<i>r. Primula marginata</i> . Margined primrose.
<i>Euonymus japonicus variegatus</i> . Variegated Japan spindle-tree.	<i>Saxifraga umbrosa variegata</i> . Striped London pride.
<i>Ilex communis variegatus</i> . Striped common holly (many varieties).	<i>r. „ cristata variegata</i> . Variegated crested saxifrage.
<i>Juniperus sabina variegatus</i> . Striped Savin.	<i>r. „ rosularis</i> . Rose-like saxifrage.
<i>Philadelphus coronarius variegatus</i> . Striped Syringa.	<i>Spiraea ulmaria variegata</i> . Striped meadow-sweet.
<i>Rhododendron pontica variegata</i> . Striped rhododendron, or rose-bay.	<i>Veronica spicata variegata</i> . Striped spike speedwell.
<i>Spartium scoparia variegata</i> . Variegated broom.	<i>Vinca major picta</i> . Painted greater periwinkle.
<i>Taxus communis aurea</i> . Golden yew.	CLIMBING VARIEGATED PLANTS.
<i>Thymus vulgaris variegatus</i> . Striped thyme.	<i>Hedera helix</i> . Striped ivy.
<i>Salvia officinalis variegatus</i> . Striped sage.	<i>Rubus fruticosus variegatus</i> . Variegated bramble.

Those marked *r* are rock-plants, and either must be grown on rock-work, or on little mounds of earth, with some small stones or pebbles surrounding them. Where the space will allow the variegated trees to be planted, by all means have them, as they are very ornamental, and will add considerably to the beauty of the plantation during summer. The shrubs with coloured, or rather discoloured leaves, are both deciduous (plants losing their leaves) and evergreen, and, therefore, are ornamental all the year. Most of the herbaceous plants keep their pretty leaves through the winter, and even on that account alone are very desirable.

HOLLYHOCKS.—Amongst the many fine flowers that ornament our gardens during the last months of summer, there are none that surpass the hollyhock. We saw this last season, in the month of August, at Raby Castle, the seat of the Duke of Cleveland, a magnificent example of what this plant can effect. On each side of a long broad walk leading to the hothouses was a closely-planted row of tall hollyhocks, forming an object of great beauty, and, at the same time, hiding the kitchen-garden crops. Their appearance was noble and imposing in the highest degree. We were so well pleased with them that we shall devote a few lines to recommend them, and describe the culture necessary for them. Hollyhocks are raised from seed, and propagated by division or cuttings.

Sow the seeds in wide shallow pots in March, and set them on a warm bed of either dung, leaves, or tanner's bark, covered with two inches of coal ashes,

firmly beaten. The soil proper to grow them in is a light sandy loam, enriched with about one-fourth of vegetable mould. Cover the seeds about half an inch, and give a gentle watering. They will soon come up, and will then require plenty of air in mild weather. As the season advances, give still more air, to prevent the plants drawing up weak. By the end of April they may be exposed to the open air during the day for a week or ten days, and as soon as there is no danger from frosty nights, set them out of the frame in a warm corner, and dig a bed of sufficient dimensions to hold them all, enriching it with soot and rotten dung. Then turn the plants out of the pots, and divide them carefully from each other, and plant them at six inches apart every way; choose showery weather, if possible, for this operation. The plants can remain in this bed until September, and will be then good strong plants. That month is the best to plant them out in the situation where they are to flower. These plants love a rich soil; and if you wish to see them in all their grandeur, give them strong food. Provide strong stakes, at least seven or eight feet long; apply these in good time, and tie the hollyhocks up to them frequently and strongly, for the winds have great power over their tall stems. During the flowering season mark such as are very double, of a good shape, and fine colours; and on a durable label describe the particulars of the character of each. From those good kinds you are to propagate by division or cuttings.

By Division.— Sometimes the plants throw out shoots from the main stem below the surface; these shoots commonly produce roots independent of those belonging to the main stem. With a knife divide such shoots from the old plant, taking them carefully up, preserving every fibre; plant them in a bed as directed for seedlings, and in the autumn following they will be fit to take their place where they are to flower.

By Cuttings.— The best time for propagating by cuttings is the spring. Take off the shoots when they are rather woody, and trim off all the large leaves. Plant them 6 inches apart in sand on a shady border under hand-glasses, burying one bud, or eye, below the surface. Pick off, as they occur, the decaying leaves. They will root in about six weeks, when the hand-glasses may be removed, and in a fortnight the plants will be fit to transplant into a bed, and afterwards managed the same as seedlings. To cottagers who may not have the convenience of hand-glasses, we would suggest that hollyhocks may be sown in a warm border in April, and afterwards transplanted as described above for those raised in frames. Though managed in this way as well as possible, they will by no means make such strong plants as by the former, at least for the first year. Hollyhocks may thus be procured for a moderate sized garden for a mere trifle. A shilling packet of seeds will produce at least one hundred plants.

FLORISTS' FLOWERS.

THE CARNATION.— In our last number we described the stage for blooming them on. We would remark that this stage, by a little management, may be made use of for auriculas and polyanthuses. The only thing to alter will be the shelves; instead of being level, and only one foot from the ground, the back-board should be brought up nearly level with the eye, and the other two about six inches below each other; the three will then form a sloping stage. After the auriculas are out of bloom, the carnations will be ready to put in their place.

SOIL.— The proper compost for carnations is as follows:— Sound light loam, made of turf from an old pasture, well rotted and frequently turned, three barrow-loads; rotted hotbed dung, one barrow-load; rotted leaves, one barrow-load; one peck of soot, and one peck of river sand. Let these be well mixed and turned over once a month for a year. In turning it over remove the largest stones and roots of bad perennial weeds, such as couch-grass, dandelions, docks, &c., and be very particular to look diligently for that destructive pest to these plants, the wire-worm.

Pots.— During winter, carnations should be kept in pots five inches wide, two of a kind in each pot. The pots for blooming them in should be twelve inches wide and ten inches deep. In the month of March have in readiness some broken pots, about one or two inches wide—or oyster-shells will answer when broken pots cannot be had; cover the hole at the bottom of the pot with a large piece, the hollow side downwards; then place round it as many largish pieces as will cover the bottom of the pot level with the large piece in the centre. Upon these place about an inch thick of small pieces about the size of hazel-nuts; over these put some of the turfy part of the compost; the pot is now ready for the plant. Turn them carefully out of their winter pots, keeping the balls entire, excepting removing the crocks at the bottom; put as much soil in the pot as will raise the ball a little above the level of the rim, then fill up with the compost round the ball till the pot is pretty full, give a smart shake down upon the bench, level the soil with the hand, and the operation of potting is finished. T. APPELBY.

GREENHOUSE AND WINDOW GARDENING.

GREENHOUSES.— Of all the departments of gardening, perhaps there are none of more interest to a retired family than that afforded by a small greenhouse, more particularly so if the greenhouse is attached to the dwelling-house, and the female members of the family are fond of rearing plants. At any rate, a small greenhouse would very much extend the source of enjoyment to be procured from a garden. Persons who have not paid any attention to this subject themselves have little idea of the variety of plants which a small greenhouse is calculated to afford, at perhaps little or no more expense than what is often incurred with a three or four-light pit with a flue in it. The trouble of lighting a fire is the same in both instances; the work of attendance is more troublesome where plants are wintered in a pit, for they are more liable to damps and other injuries there than in a greenhouse, where they can be kept drier, and looked over in bad weather when nothing can be done out of doors. When one has got over the difficulty of incurring the necessary expense of erecting a greenhouse, and fixed on the situation, the next great difficulty is, how to plan the house itself, what elevation the glass should have, what the arrangements inside as to shelves, stages, paths, flues, &c. It has often been objected to by books and gardeners, that no two of them agree about the mode of even planning and arranging such a small concern as an ordinary greenhouse. And the objection is valid enough to a certain extent; but it may be asked, if two of any other craft agree in anything but on some main points or certain fixed principles? Will two physicians, for instance, agree in prescribing for a patient? or two engineers

in laying down a railroad? It is quite enough if men who have studied a profession, or any branch of knowledge, agree in the fundamental principles of their art. Matters of detail are always more or less guided by fancy and convenience. If two gardeners are agreed as to the strength and durability of the timber, the kind of glass best suited to the purpose, and the best aspect and slant, or inclination, of the roof, they may differ as to all other points in the edifice they produce, but each will erect a good greenhouse.

The best aspect for either a greenhouse or pit is south; but east or west aspects will answer. The angle of the roof is best when low, say about thirty degrees; the width inside from twelve to fourteen feet. Greenhouse-plants always do best when the roof is pitched low. The usual objection to low roofs is, that the wind will drive in the rain between the glass; but that is easily got over by having the laps of the panes puttied. A higher angle for the roof than thirty degrees is apt to draw the plants too much to one side. You always see nurserymen, who are good judges of what is best for their plants, use flat roofs to their greenhouses. The roof sashes should be in two lengths, and the top ones one-third shorter than the bottom ones; they will thus be lighter for sliding up and down in giving air to the house. A better plan, however, would be to have all the roof lights or sashes fixed, and in that case they would be better in one length; but that could only be done well when a good dry shed is placed against the wall, behind the greenhouse; into this shed large openings might be made at the top of the back wall, for giving air. One of the greenhouses here (Shrubland Park) is thus constructed, and answers very well. The lights have never been moved since they were put on, ten years since. Indeed, this very house and shed may be described as an example of one very economical and useful for an amateur. This house is twelve feet wide inside, the back of it thirteen feet high, and the front six feet, consisting of two and a half feet of brickwork, and the rest of glass; the front sashes move on hinges, by which they are fastened to the top plate, and when opened, for giving air, are retained in their position by a thin piece of flat iron, fifteen inches long, fastened to the bottom frame of each sash. This flat handle, as I may call it, is pierced with ten holes along the centre, about an inch apart, and there is an iron pin, one and a half inch long, fixed in the lower wall-plate, which fits these holes. Now, when you want to give air you take hold of this handle, lift it from the pin, and push out the sash with it, say to the length of six holes; drop down the handle then over the iron pin, and your light stands open six or eight inches wide. No wind or accident can alter it backwards or forwards till the handle is let go off the pin. There is nothing in this contrivance to get out of order, and it is the simplest thing possible. All the front sashes may be opened to fourteen inches wide, and, with the door open, the plants are nearly as free as if they were in the open air. The roof sashes are all fixed, and just under the top angle there is an opening into the back shed under each light. These openings are three feet long and a foot wide, without any shutters to them; there they are wide open day and night, winter and summer. The shed behind is always dry, being used to hold large myrtles, fuchsias, &c., during the winter, and as a painter's shop and lumber-room in summer, so that a current of dry air plays over the plants all the year round. When the shed and greenhouse are closely shut up in frosty weather, the current of air goes on nearly as strong as when all is open, by a very simple contrivance. The floor of the shed is six inches lower

at one end, and here a hole is made through into the greenhouse; this hole is directly over the furnace, which heats the greenhouse flue. As the air cools in the shed, it rolls down to this opening, and is sucked into the greenhouse by the heat of the furnace; it then ascends over the plants till it escapes into the shed again by the top openings. I may state also, for the economy of the thing, that what we call the back wall is only made up of posts and strong boards, plastered over on the greenhouse side, and whitewashed with lime on the shed side; and being always kept dry, will last a life-time.

A shelf, thirty inches wide, runs along the front and one end of this greenhouse, and under this shelf the flue passes all the way: the shelf is two feet three inches high from the level of the path—the bearers which support it being cross-pieces let into the second course of brickwork next the top; the shelf thus standing one brick lower than the front glass. The path ought to be two feet ten inches wide, or if you give it a yard it will be all the better. Recollect there will be a shelf on each side of it; and when your friends come to see your success in growing plants, they have to walk, stand, or turn round in the path; and if there are ladies in the party, their dresses are sure to be made so full that a narrow path will not allow them to pass without pulling down your pots and plants on either side of the way, and instead of getting any praise for your plants and for the laying-out of your new greenhouse, you will be told, and very properly too, that "you have made a poking place of it after all." Let us therefore have a wide comfortable path at any rate, though by doing so we encroach a little on the shelves. The front shelf need not be wider than eighteen inches, just to cover over the flue, if you are tied for room, as no tall plants could occupy that part for fear of intercepting the light from the rest of the plants. The roof sashes are best made four feet wide, or as near to that as the size of the glass will allow; let them be made of the best red deal, primed, and once painted before the glazing is done. The reason for giving two coats of paint is, that after the glass is in there must be no more painting allowed for full three months. Now, if you contract with a builder to erect the house, recollect to enter this clause about the painting in the specification, as he will be sure to urge you to finish it off at once. The reason for the three months' delay is that the putty may get dry throughout before it is fit to be painted. Of course you will be told this is all fancy, and that ninety-nine persons out of a hundred never think of such a thing, and that a little white lead mixed with the putty will make it *set* hard in a few days; and so it would, but have nothing to do with that sort of putty; gardeners never allow the use of that old kind of putty in these days, because once it gets dry they can hardly cut it when repairs or alterations are to be made afterwards. I have seen a good glazier break four squares of glass trying to mend one broken one, besides spending an hour and a half at the job, which a mere lad could do in five minutes, and without any breakage, if proper putty had been used in the first instance. Hothouse putty is made with whiting, pounded down and sifted very fine, and boiled linseed-oil, making it into dough as the bakers do their bread; the more the dough of putty is worked the better it will be, and it should be at least ten days old before it is used; in that time a large lump of it will "sweat," that is, slightly ferment, which is necessary to give it the proper adhesive power. When this soft putty, as it is called, is allowed to dry thoroughly before it is painted over, it will last as long as the hardest white-lead putty, and at the end of twenty years be soft

enough to be cut away with your knife. If, therefore, you wished to remove your greenhouse at any future time, you could easily take out the glass, pack it in boxes, and the timber-work could then be handled and packed without the risk of annoyance of breaking the glass. We often see very neat well-built green-houses in all respects, except that the putty having been painted over as soon as the lights were glazed gives way the second season, the paint having blistered, not being able to fix or unite with the putty in a green or damp state. Then the rains drip in between the putty and the glass in all directions. Now, to guard against this every-day occurrence is the reason for my dwelling so long on such minute details. To say that this, that, or the other, should or should not be done, without assigning reasons for what you say, is no proof that the party giving such directions is any judge of what he recommends or condemns. In making the shelves for the body of the house, the lowest shelf ought to be on a level with the front one, and the others carried up in regular gradations, according to the slope of the roof. If the house is detached from other buildings, both ends should be glazed above the level of the shelves. The door is to be at one end, and the fire-place behind the door, the flue passing under the path within the doorway, and on reaching the front wall, to rise with a gentle slope, and to be carried nearly on a level along the front wall, and within two inches of it, and to pass along to the farthest end of the house into a chimney in the corner. The size of the flue to be nine inches wide and fourteen inches deep, made with bricks set on edge, and on no account to be plastered inside or out. The top and bottom of the flue to be made with thick tiles, called "foot-panments," the bottom ones resting on flat bricks to clear them from the ground; the fire-place should be eighteen inches long by fourteen inches wide, and fourteen inches high, with iron bars for a hearth. The door to be a foot square, and the ash-pit nine inches deep, and the same length and width as the fire-place above it. The door of the fire-place would be more effective, and less liable to warp with the heat, if it is made a "double" door, that is, by having a plain square piece of half-inch thick iron rivetted to the inside of it, and two inches apart from the inside of the door; this is a simple and very useful contrivance, but often neglected. British sheet glass, sixteen ounces to the foot, is the best kind to use; the width of the panes for the roof sashes should be about eight or ten inches wide, and from a foot to eighteen inches long. For the front sashes the glass may be much larger every way. This kind of glass is sold in boxes, containing a hundred feet of glass each, and sold from 2½d. to 3d. per foot. Sashes of the best red deal are generally made by contract, at about 6d. per square foot; but the price, no doubt, varies in different parts of the country, but this will be sufficient to form a guess at what the sashes and glass will cost, for nothing of this kind ought to be attempted before every item of the expense is first ascertained. One suggestion more, and I have done. If the house is made by contract, let the contractor be responsible for the efficiency of the whole for the first twelve months.

D. BEATON.

THE KITCHEN-GARDEN.

DWARF AND RUNNER KIDNEY-BEANS.—Of these there are very numerous varieties. Almost every locality has its favourite, some distinguished for their earliness, and others for being prolific. Amongst

the best of the early dwarfs are the dun-coloured and white-seeded. The most prolific dwarfs are the negro and robin's egg. All four are of good quality. Of runners, the case knife and scarlet are considered the best; the latter is the most prolific and most useful bean of all; it can be grown almost on any kind of soil and place in better condition than any other variety.

BROCOLI.—If the true Walcheren Brocoli is sown in March, and at intervals of three or four weeks until Midsummer, and planted in succession on well-prepared soil, it will produce good heads throughout the greater part of the season. The Malta-white, Knight's-protecting, and the Russiau-white, are excellent varieties, succeeding each other in the order they are named through the winter and spring; the Russiau lasting until cauliflowers come in. The Wilcove, also, is a good and useful variety. The true Purple sprouting is the most prolific and useful kind for the cottager, and for all who can afford but little ground for this vegetable. The Purple and Hammond's White Cape are useful in summer and throughout autumn, if sown in succession as directed for the Walcheren. The other varieties, if sown in April, will produce plants strong enough to be put into the ground from which the peas and beans have been cleared at the end of summer. We generally sow at Bicton, for the principal crops of brocoli, about the middle of April, earlier or later, according to the season.

BORECOLE OR KALE.—Of this there are many prolific hardy varieties, useful for every cottage garden; such as the Scotch or Curl Borecole, both dwarf and tall; the Siberian and Egyptian, both very hardy and prolific. The Buda, Jerusalem, and Chou-de-Milan (the Milan cabbage), are equally hardy and good. The Buda, if the true variety, is the most prolific of any, continuing to yield an abundance of green tender shoots, even in very cold weather, when other vegetables have ceased to grow. The Brussels sprouts are always equally prolific, and are a good winter vegetable, if a true variety, and properly managed. In this country its cultivators are often disappointed, although the variety may be true, by the plants producing little open sprouts instead of the little firm-hearted bleached heads so generally admired. There are two varieties, a tall and a dwarf, and both good. The seed should be sown in March and April, and as soon as the plants are large enough to handle they should be pricked out, on an open spot of rich soil. The Brussels sprouts is a hardy vegetable, requiring an open airy piece of ground for permanent planting out. We find that the soil for it should not be made over-rich with fresh manure; for, if it is, the sprouts will most likely be open. It is best to plant this vegetable on ground which has first borne a crop of some other kind after manuring. The sprouts will then probably be produced firm and blanched.

CABBAGE.—This is certainly one of the most useful and productive of all vegetables. Its varieties have been greatly improved within the last twenty years, and are now so numerous that it is not easy to make a choice; indeed, almost every locality has its own peculiar or favourite variety. The Battersea, Fulham, East Ham, Imperial, Sugar-loaf, and early York, are all well-proved good varieties. Of those lately introduced, we have the Matchless, a pretty dwarf, dark green cabbage, growing close to the soil, having few leaves besides the heart, and coming in early. The Nonpareil is a good variety, also early, but of a lighter green and larger size than the Matchless. Shilling's Queen, Barnes, Sprotborough,

and Paragon, are all first-rate varieties; they are early, and of good quality. For the Matchless, we never allow more room than one foot from plant to plant each way. On a sloping bank they have a very neat and orderly appearance, the ground looking as if paved with cabbages. The Dwarf Red Dutch is good for pickling, preserving, and stewing. The Flat Pole is the best for pigs, cattle, sheep, and poultry; all of which are remarkably fond of it, and, indeed, thrive well on good cabbage of any kind.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 9.)

THE last month of the departing year has opened upon us, and is fleeting rapidly away; and although some of us have passed through more Decembers than we may care to number, yet there is ever a solemn feeling in drawing near to the close of another of those stated periods which mark the flight of Time. In our childish days years felt like ages. With eyes and wishes fixed on distant things, Time seemed flying backwards; but *now* he rushes on with railroad speed, and none can call him back. No signal can check his rapid pace; no station interrupts his steady course; but there is a *terminus*, whenever Time shall be no more, and for that solemn place and hour, each passing year loudly calls us to prepare.

This month, dreary as it is considered, has its embellishments. To the Christian, indeed, no season is dreary, all are alike telling of the wisdom and goodness of God, and certifying his gracious promise, that "while the earth remaineth, seed time and harvest, and cold and heat, and summer and winter, and day and night, shall not cease." But the sobriety of winter is enlivened by the brightness of two stout-hearted evergreens, the one adorning the house, and the other glittering in the garden. The gay Pyracantha, or Evergreen Thorn, spreads itself over the cottage wall, and glows like coals of fire. Its bunches of red berries form a beautiful contrast to the dark sombre leaves; and during the snow they make us feel almost warm. I have often seen this plant clothing the gable of a cottage, and the effect is very rich. Useless plants—those, I mean, which bear no fruit—should never be encouraged in cottage gardens, where profitable ones would grow; but there are situations and aspects, unfavourable to fruit trees, where ornamental plants do well, and the Pyracantha should be one of these. It gives to the little dwelling a cheerful, happy look, and when the thatch is dripping with rain, or fringed with icicles, the bright clusters smile through it all, and seem to defy the storm. On the walls of a cottage residence, where profit is less considered than a pleasing effect, this cheerful winter ornament might be often trained among the lovely summer creepers, and thus there would be a constant succession of rich colours throughout the year. It may be moved in spring or autumn, but the most advantageous time is very early spring.

The holly is now decking itself with beads of coral, and its dark polished leaves are in full luxuriance and beauty. It speaks of the great approaching festival, of which it has long been the ornament and emblem, so much so, that the poor know it generally by the name of "Christmas." It is supposed that it takes its name from being used in religious festivals. Dr. Turner, an early writer on plants, calls it "holly-tree;" and among the Germans, Swedes, and Danes,

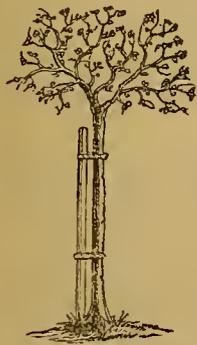
it is called "Christdoon," "Christoon," and "Christtoon," from which it appears to be a kind of holy plant among these nations. In some parts of India, when an infant is born, water is thrown on its face from a vessel formed of the bark of the holly tree. To Christians there is peculiar interest attached to it; and from our earliest childhood we have seen it wreathing our homes and churches. The thorny leaves, the berries, like crimson drops, dimly remind us, too, of what to our hearts should be so *deeply precious*; and it is possible that earlier Christians had this in view when they hung it round their hearths and places of worship.

The holly is of slow growth, but rewards our patience, for its foliage is rich and handsome, and either as a standard or a hedge-plant it is both useful and beautiful. It is particularly well-suited for the hedge, either round fields or gardens; and I am surprised that it is not more generally used, as cattle cannot break through it when properly managed, and it would greatly protect cottage gardens from thieves as well as animals. Quickset-hedges are very pretty in summer, but they shed their leaves, and are, besides, easily broken through. Yew, hornbeam, &c., are also pleasing to the eye, but too mild in their manners for a useful fence. There is a sturdy "John Bullism" about a holly, and a sharpness of reproof that cannot easily be tampered with, and this makes it highly advantageous near fields and commons especially, and a wild heathy soil suits it well. If cottagers would plant them on the bank that surrounds their garden they would soon thicken and displace the untidy broken hedge that usually forms the only fence; and as their delicate white blossoms appear in May, they would be an ornament to the little homestead also nearly all the year. The variegated holly is a pretty-looking tree, and the yellow-berried variety is ornamental in a shrubbery, as the berries look like blossoms at a little distance, lasting from October to March; so that the holly may be said to adorn the garden continually. The proper time for planting hollies is in October, but in open weather they may be moved much later. Spring planting rarely succeeds, and should not be risked if we can possibly avoid it. If the weather is dry when they are moved, sprinkle them with water two or three times a week for a little while. If seedlings are taken carefully up, and planted well, they will, in three or four years, be as many feet in height; and they are frequently met with in woods and copses fit for removal. Never destroy a seedling holly. Plant it, forget it, and some day it will surprise you as a stout little plant, ready to do you service. Do not cut the holly much, and then only in spring, before they make their shoots. If they become stunted, train up the leader and head-back the laterals (that is, the side shoots,) so as to increase their height. But if you train them properly from their youth, they will not be stunted, and much cutting, which they dislike, may be avoided. The wayward heart of childhood rejects the training that is good for it, but the senseless bough bends to the hand, and obeys the impulse given. In this particular are we not children still?

If we would let our gardens reprove us, what useful lessons we might learn. How bitterly do they reproach us! We are vexed when pigs or chickens root up our plants and seeds; we are vexed if we cannot lay in a redundant shoot, or train one just as we please; out flies the knife, down falls the disobedient bough; we will be obeyed one way or other. But if God thus dealt with the trees in His garden,

what would become of us? Let our own hasty ways magnify his strong and patient goodness. We deserve at his hands wrath and indignation, yet he spares us still. Let the twig that lies at our feet lead us to adore that mercy which, for the Pleader's sake, waits yet another year before he cuts us down.

STANDARD CURRANT-TREES.



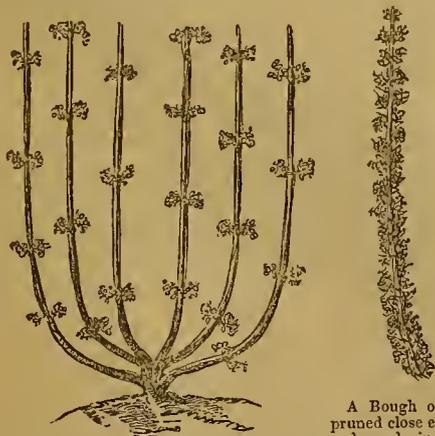
A Standard Currant-tree (leafless), shewing its fruit-buds.

RESPECTING the cultivation of standard currant-trees, I beg to observe that the roots are pruned of necessity as the ground is dug and cultivated to within a circle of three feet, so that they are *root-pruned*; so strongly advised in your valuable work. The stems are about three feet high, and the head is closely pruned-in every year, leaving only two or three buds on the young shoot. This *pruning-in* has a most surprising effect in causing the tree to produce fruit so large that few would believe without seeing it. It is a year and a half since my best twelve

plants were planted in my garden, and then the roots were so full of small fibres, that they resembled a mop.

The fruit on those that are well established is larger than the same kind is, cultivated in the ordinary way.

The advantages of cultivating fruit-trees this way are—much less room is required, no fruit is lost by being trailed on the ground, they are more easily protected from birds, &c., the fruit larger, and they spoil no ground by shading it. We also learn, that if fruit-trees grown in the old form were *pruned-in* oftener, that they would bear more fruit and grow less wood.



A Tree with Fruit-buds at the joint far apart.

A Bough of a Tree pruned close each year, and producing a mass of Fruit-buds from top to bottom.

I think it not impossible to produce the effect of the second drawing; and if in one branch, so with six or eight, and then we have a tree of the old form, but full of fruit-buds. The first is an example of the old trees of my neighbours' large and old trees, producing very little fruit compared to their size and age.

Jos. BALL, *Loughton Farms Potteries, Staffordshire.*

HINTS FROM OUR CONTEMPORARIES.

GENERAL PRINCIPLES FOR PRUNING.—It would seem very difficult at first sight to classify our fruit-trees in general, as to compress within a narrow limit principles applicable to the whole of our hardy fruits. We will, however, attempt to do so, and will first premise that some of these principles are applicable to the whole, whilst others are of a special nature.

In order to render the matter more clear, it will be necessary to cast the eye over the principal objects or reasons for pruning; these clearly exhibited, the rest will be found simple indeed.

In the first place, then, thinning-out is necessary, in order to admit or equalize the amount of light and air to the bearing-wood.

In the second, it is frequently resorted to for the sake of increasing the size and quality of the fruit.

Thus far what is termed "*thinning-out*." We will now advert to the process termed shortening, or *pruning back* the shoots. The latter process is practised for two principal reasons,—the one to increase the number of shoots, and the other to cause the tree to produce abundance of side spurs. It must not, however, be inferred that any kind of pruning will of necessity render a tree more fruitful than if left in a state of nature. Pruning is altogether an artificial procedure, and becomes necessary principally through limitation of space. Nature has her own peculiar modes of pruning, if such they may be termed; and that is by suffocation, and by the continual tendency of the ascending or extending branches to weaken, and finally to starve out, the lower branches.

Having said thus much as in introduction to the subject, we will now proceed to another consideration bearing on pruning affairs, viz., the *classification of fruit-trees*, with regard to their *modes of bearing*. One portion of them, it is well-known, bears almost exclusively on the young wood of the past year; of such are the vine, peach, nectarine, gooseberry, and black currant.

A second portion bears almost exclusively on spurs attached to the older wood; of such are the apricot, plum, cherry, pear, apple, and the ordinary red and white currants.

We must here observe, that there are some singular exceptions to these rules, and that some fruit-trees produce indifferently on both; these, however, need not be singled out; it is manifest with such, that their pruning treatment must be a sort of compromise, or rather amalgamation of the principles applied to the two distinct sections already enumerated. These constitute, in the main, the groundwork of all pruning; but, in carrying out these principles, it should be borne in mind that some trees are natives of brighter skies than Great Britain, to say nothing of the mere question of heat. Such should, therefore, be more liberally thinned, and in training them the shoots placed farther apart. Of such we may quote the vine, the apricot, the peach, and nectarine, the fig, and the tender sorts of Flemish pears. The order in which we have mentioned these, will, in our opinion, pretty correctly indicate their partiality respectively to light.

It becomes necessary here to offer some advice as to the distance to which shortening the young shoots should be carried; for, although old practitioners can tell at a glance, by a sort of instinctive feeling, how these things should be performed, yet here we would rather address ourselves to the amateur, or the

mere tyro, who have of course not been able to profit by the same amount of experience as those previously alluded to.

Shortening back the shoots, as before observed, must be ruled by the object in view, bearing in mind, also, that some trees have an apter tendency to force out lateral shoots than others. It may, moreover, be observed, that great peculiarities in this respect exist even in one family of fruits. Any person may be satisfied of this by observing the habits of even our common apple-tree, especially in a plantation of some seven years' standing. Some kinds will appear to be laterally choked with side shoots, others will be comparatively naked.

Under these circumstances, we can merely advise that, previously to pruning, it would be well to acquire some information of the kind; and having done so, the mode will readily suggest itself. However, as a plain rule, about one-half of the shoot may be reduced; but in tender fruit-trees, as the peach, it is necessary, above all things, to prune as far back as the firm, or, in other words, well-ripened wood. The best criterion, generally speaking, of well-ripened wood, is its solidity; that is to say, the small amount of pith in proportion to the true wood.—*Gardeners' Almanack for 1849.*

FERTILE EARTHY COMPOST.—As it may be desirable to many persons to know how to make a fertile loam, and as I have had much practice in this work, I send you an account of how I proceed.

I procure a load of clay, and having tempered it well, and made it very soft, I add to it three loads of sand, one load of lime, and two loads of sawdust, peat, or leaf-mould. The whole is then beaten with a spade, and more water added, until as well mixed as lime and sand are in making mortar. The water used for this purpose may be the dirty water from the house. When this is done, the whole is left in a heap to dry; and when dry, pared down in thin slices with a sharp spade as required. Where roads are mended with lime-stones, the scrapings may be used instead of lime; and where marl can be had, instead of clay and lime.

On analysis, sixteen of the simple substances ought to be found in soil. If the water mentioned has been used, there will be most of these substances, and in the quantity desirable, which is very minute.

C. A. A. LLOYD, *Whittington.*

TO CORRESPONDENTS.

HEATING BY GAS (*F. J., Hampstead*).—This is not a new proposal. Gas has been often tried as a mode of warming greenhouses, &c., and as often failed. It is too expensive, and spoils the air so much as to injure the plants.

PERFORATED GARDEN-POT (*Ibid.*).—This is not required for plants plunged in borders. If it is desirable that their roots should extend beyond the pot, it is best at once to turn them out of the pot, and plant them in the border. But it is generally most desirable to keep the roots within the pot, for the sake of keeping the plants compact and of moderate size. One of the objects of annually repotting is to reduce the quantity of the roots, so that the head or branches may be also kept within moderate bounds.

EARTH-WORMS (*R. A.*).—We do not recommend these to be destroyed. If you sprinkle salt at the rate of four bushels per acre over your grass-plot about once in every two months, you will keep them away from the surface, and benefit your turf.

INDEX (*Ibid.*).—We will take care that a very copious index shall be given at the end of each volume.

THE TAAUSA (*Rev. C. W. B., Dorset*).—We have been much obliged by the following letter:

"I saw in your Weekly Calendar, in the eighth Number of the *COTTAGE GARDENER*, that the thrush (by which I presumed the song-thrush *Turdus musicus*, to be meant) would resume singing on Wednesday, Nov. 29. Your vaticination, upon what authority founded I know not, was certainly not far wrong. Sir, on Sunday morning, the 26th, the song-thrushes here began singing most lustily, and have been singing daily ever since. I have not, indeed, seen one so engaged, but I do not imagine I can be deceived as to their song.

"Upon looking into Mr. Yarrell's *Birds*, I find him representing the song of the thrush as 'beginning early in the spring;' and again, 'White, of Selborne, considered it a rule, that whenever there was incubation there was music; and the early spring-song of the thrush is an equally true indication of an early breeder.' Volume i., page 203.

"Now, although this subject be not directly propounded in your very valuable little Publication, yet it grows so naturally out of it, that I venture to inquire, through its pages, which of the two parties concerned are in error; viz., White and Yarrell, or you and the thrushes?"

[We incline to think that we and the thrushes are right.—ED. C. G.]

MANURE (*H. H., Hammersmith*).—As you object to the use of stable manure in your garden, we recommend you to use such charred vegetable matters as you can obtain; the urate of the London Manure Company, and super-phosphate of lime; these are all very manurable for a lady, and together will form an efficient substitute for the usual fertilizers.

OXIDE OF IRON IN SOIL FOR ROSES (*H. Curtis and Co., West of England Rosaries*).—These excellent cultivators of the rose think Mr. Appleby wrong in warning our readers, at page 14, from using a soil containing much oxide of iron. Their communication shall be published shortly; but, in the meantime, will they oblige us by sending, post free, a few grains of the soil in which they find their roses thrive best?

POTS FOR ALPINE PLANTS (*Rev. C. W. L.*).—The pierced pots we have recommended in "*The Gardeners' Almanack*" for 1849, could be made for you by any potter from the drawing there given. Thanks for your very agreeable letter.

DISSOLVED BONES (*Q. in a Corner, Kendal, and A Subscriber, Hornsey*).—The quantity recommended to be used, at page 62, is small, because only intended for the supply of one crop. The larger quantity, mentioned at page 28, was for a dressing to endure throughout a rotation of crops. Whole bones take a very long time to dissolve in the acid. An old tub or barrel is a very proper vessel for dissolving bones in; it will last for years with proper care. If properly broken, and the acid properly applied to them, a bushel of bones will be dissolved in twenty-four hours.

URINE AND CHLORIDE OF LIME (*Tyro*).—Neither of these can be used undiluted as a manure to plants; they are far too powerful.

FEANS IN GLASS CASES (*A Working Man*).—We will endeavour to give the information you require next week.

SANDY SOIL (*H. B. S., Nottingham*).—Your very sandy ground cannot be improved by manures alone. The staple must be altered by means of marl or clay. Salt may occasionally be applied, and gypsum, as a fixer, may be added to the manure. Plant strumer-pippin by all means. You must state whether your six apples are for table or not. Our Number for November 30 will give you the necessary information about preparing the soil. Plenty of quicklime in water will destroy your worms on the grass-plot. Our space is out as to more remarks here: watch our columns—nothing will be neglected. We will shortly remark on your plan for making soil for fruits; in the meantime, pray do not proceed in the way you mention.

ALLOTMENT CROPPING (*Rev. J. W. R.*).—You will see that, in future, we intend to have a separate department for this subject; in the meantime, we would beg to direct attention to our Diagram at page 51. We do not wish it to be inferred that this is the only eligible course; many modes of cropping a quarter of an acre may be urged. For the present we would say, divide the plot in three parts instead of two, if wheat must form a part of the rotation.

1849.	Wheat.	Potatoes.	Miscellaneous.
1850.	Miscellaneous.	Wheat.	Potatoes.
1851.	Potatoes.	Miscellaneous.	Wheat.
1852.	Wheat.	Potatoes.	Miscellaneous.

It must be observed, that under the head "*Miscellaneous*" may be included carrots, parsnips, beet, and the various greens or cabbages—of which we should consider the green kale one of the chief. These, to be serviceable, would occupy their ground till the early part of March, which would be too late for cottager's wheat.

It is our wish that nothing should appear in our Advertising columns that is not calculated to benefit our readers; but the Editor of *THE COTTAGE GARDENER* begs to explain, once for all, that he in no case must be considered responsible for the goodness of the article advertised. He will take care to exclude all that he knows to be bad, but he can do no more.

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WEEKLY CALENDAR.

M D	W D	DEC. 28, 1848—JAN. 3, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
28	TH	INNOCENTS. Black duck arrives.	Bloody-flowered Heath.	9 a 8	55 a 3	7 9	3	2 2	363
29	F	Velvet duck arrives.	Broom-leaved Heath.	9	56	8 16	4	2 32	364
30	S	Eider duck comes to Tarn Island.	Glandulous Ponthieva.	9	57	9 24	5	3 1	365
31	SUN	1 SUN. AFTER CHRIST. Silvester.	Snwodrop.	9	58	10 35	6	3 29	366
1	M	CIRCUMCISION.	Laurustinus.	9	1v	11 a 48	7	3 58	1
2	TU	Lime Hawk Moth's Grub found.	Groundsel.	8	0	morn.	8	4 26	2
3	W	Bay-shouldered Button-moth seen	Persian Iris.	8	2	1 1	9	4 54	3

INNOCENTS.—On this day is commemorated the slaughter of the children of Bethlehem. It is known in some districts as Childermas Day—masses being said on this anniversary by Roman Catholics for the repose of the souls of those "Innocents."

SILVESTER died Bishop of Rome, in 334. He is known as Pope Silvester the First, and why commemorated we do not know.

NEW YEAR'S DAY.—We will not neglect the good old English custom of wishing to every one whose eye rests upon these lines, "A happy New Year!" No one ever regarded this day with indifference; and the gardener is certainly not an exception to the rule. Much are his future hopes dependent upon the character of this season; and it is not a bad wish, so far as the prosperity of his next year's crops are concerned, to wish that he may, for no brief period, be a "frozen-out gardener!"

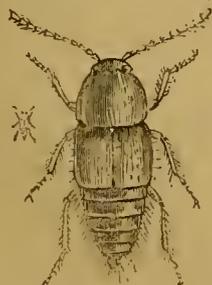
PHENOMENA OF THE SEASON.—The most characteristic, most beautiful, and most beneficial occurrence of this period of the year is the fall of snow. It is not our purpose to dwell upon the beauty of its star-shaped crystals, nor upon its magic influence over a landscape, but to offer a few notes upon its utility to the gardener. There

is now but little doubt that snow really acts as a manure—not merely by killing insects and converting them into decaying matter, but by actually adding ammonia to the soil. It was an opinion entertained by the earliest philosophers, that snow contained some kind of salt beneficial to plants; and the poet Thomson only repeats their opinion when he says of wintry weather,

"Through the blue serene,
For sight too fine, th' ethereal nitre flies.
* * * The frost-concocted glebe
Draws in abundant vegetable soul,
And gathers vigour for the coming year."

Liebig, however, by actual experiment, has shewn that both snow and rain contain ammonia in quantity quite sufficient to be materially beneficial to plants. Snow also acts as a protection from severe cold to the plants which it covers. We have known the temperature of the air, on several following days, to have fallen as low as 28°, whilst a thermometer, buried six inches under snow, never fell, during the whole of the same time, lower than 32°. Broccoli plants, covered with snow, are never frosted in the neck, however cold the season may be.

INSECTS.—The gardener must not consider all insects are his foes, and



	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
28 Highest & lowest temp.	Cloudy. 44°—37°	Frosty. 43°—27°	Cloudy. 49°—42°	Fine. 48°—42°	Showery. 52°—22°	Frost. 34°—27°	Cloudy. 37°—25°	
29	Showery. 45°—39°	Cloudy. 52°—46°	Cloudy. 45°—37°	Cloudy. 49°—38°	Frost. 52°—40°	Frost. 46°—27°	Cloudy. 35°—35°	
30	Cloudy. 42°—31°	Fine. 55°—46°	Fine. 42°—39°	Cloudy. 42°—32°	Cloudy. 54°—25°	Frost. 32°—15°	Rain. 46°—32°	
31	Fine. 46°—33°	Fine. 54°—30°	Cloudy. 56°—30°	Cloudy. 44°—32°	Fine. 52°—40°	Frost. 28°—21°	Cloudy. 37°—30°	
1	Fine. 45°—34°	Fine. 38°—27°	Fine. 41°—25°	Snow. 39°—27°	Cloudy. 45°—34°	Fine. 46°—30°	Frost. 35°—29°	Cloudy. 42°—29°
2	Showery. 45°—32°	Cloudy. 37°—25°	Frost. 38°—19°	Frost. 37°—14°	Fine. 44°—24°	Frost. 41°—22°	Snow. 34°—26°	Fine. 46°—35°
3	Stormy. 39°—21°	Frost. 37°—22°	Frost. 43°—27°	Frost. 42°—32°	Frost. 46°—29°	Frost. 43°—38°	Frost. 35°—30°	Cloudy. 51°—41°

wage war against them without distinction. Many of them are perfectly harmless, and others are among the number of his best friends. Of these we shall have frequent occasion to take notice, but at present shall confine our notice to one small beetle—*Tachyporus Chrysolinus* (Golden-coloured Tachyporus.) It is here represented of its natural size, and magnified. The prevailing colour of this insect is black, and it is remarkably smooth and shining all over—evidently for the purpose of enabling it more easily to penetrate the soil. Its throat and outer edge of the wings, and the legs, are reddish yellow, or golden-coloured. In the summer, about June, it is found in flowers, but in the months of December, January, and February, it is found among the roots of grass, and in the moss about grass-plots. In whatever situation found, it is doing no harm. On the contrary, at this season it is actually aiding the gardener to convey decayed matters into the body of the soil. It feeds upon these, and conveys them into the earth to the roots of the plants, among which this insect has its underground haunts. Some other very similar beetles do this in a still more remarkable manner. Thus the Dungy Earth-borer (*Geotrupes Stercorarius*) makes a large deep hole under a heap of dung, depositing its eggs in the hole after wrapping them up in a ball of dung. Thus burying it at the roots of the plants, and the hole, like a pipe, conveying rain—a liquid manure after passing through the dung—to the same underground position for most usefulness.

So many applications have we had for information relative to the Jerusalem Artichoke, that we think it best to combine our answers—adding to them such observations as may be new or useful to some of our readers.

It is difficult to imagine how the name of artichoke should have been applied to this vegetable—for, with the exception of its roots (tubers) when boiled being of a consistency like that of the bottom of the artichoke-head when similarly cooked, there is no single point of resemblance. The Jerusalem arti-

choke, in fact, is neither more nor less than a tuberous-rooted sunflower. In England it does not usually bear any blossoms, though we have seen them—yellow, and differing chiefly from those of the common sunflower, in being smaller.

The Jerusalem artichoke does not bear blossoms for the same reason that the walnut-leaved kidneys, and other early varieties of the potato, are similarly flowerless—its productive, or breeding energies, are turned into another channel. If the young tubers of the Jerusalem artichoke, or the tubers of the walnut-

leaved kidney-potato, are removed as fast as they are formed, both plants will produce flowers and ripen seed. This naturally suggests the mode by which new and improved varieties of the Jerusalem artichoke might perhaps be obtained; and it is very worthy of many experiments, being a vegetable that will endure hardships almost more than any other, is nutritious, and capable of cookery in many different modes. The chief points of improvement to be sought for in seedlings of the Jerusalem artichoke are, increased size in the tubers, and less height in the stems. We are aware that, as at present cultivated, it does not ripen seed in this country; but it would do so, probably, if the tubers were removed, and thus the blossoms made to appear much earlier.

Before passing to more important points, we cannot forbear remarking that, as one of the names of this vegetable is inapplicable, so is the other name only a vulgar corruption. The uninformed would think that this vegetable either was originally brought from, or is much cultivated at, Jerusalem: whereas this name is no other than an ignorant alteration of the word *girasole*—the Italian name for the sunflower. The Jerusalem artichoke was brought from France into England in the year 1617, and was speedily cultivated extensively. It had reached France from Italy, whither it had been introduced from Brazil, its native country.

Although it will be productive in any soil, yet it is by far the most so in one that is light and moderately rich. It should never have any manure applied at the time of planting. Either fresh manure or a very fertile soil cause the Jerusalem artichoke to grow too much to stem and leaf.

The best time for planting Jerusalem artichokes is in November, but, whether planted then or in the early spring, let them be planted with the dibble six inches deep, in rows three feet apart, and the same space between every two plants in the rows. The rows should run north and south, so as to admit as much sunshine as possible between them.

No after-culture is required, but frequent hoeing, and thinning the stems, produced by each set, to one or two at the most. Neither earth-up the stems nor cut them shorter; for if you do so, the sap is consumed in producing side-branches, and the crop of tubers is proportionately reduced in quantity.

In November the tubers will be fit for taking up, either as wanted, or to be stored in alternate layers with earth. The middle-sized tubers are the best for planting. It is true that small tubers will do for this purpose, but the plants to which they give birth are smaller and less productive than those from larger tubers.

In these times (to speak in the mildest terms) of no superabundance, it is the duty of every one to communicate any mode of improving and increasing our available food with which he may become acquainted, and we are glad to do so with the Jerusalem artichoke

on the present occasion. Take two pounds of Jerusalem artichokes, pared and halved, and one pound of turnips, also pared and sliced; two or three good-sized onions, and a stick of celery; add two quarts of cold water, and boil all together slowly for more than two hours: then add two large tablespoonsful of flour, an ounce of dripping, with pepper and salt to the taste, and let it simmer on for half-an-hour longer, stirring it frequently of course.

We request all our readers, rich and poor, to make this soup *precisely* as here given, and they will find it, as we have done, if not quite "good enough for a pampered alderman," at least a most palatable addition to our every-day cookery.

THE FRUIT-GARDEN.

PEARS FOR THE GABLE-ENDS OF HOUSES.—It has often been occasion of much regret with us, in passing through the country, to behold so many situations of this kind unoccupied by fruit-trees. We do not mean to say that the majority are thus neglected, but that a great many are; and such, of course, entail on the tenants a loss of profit, or of convenience, or of both. But, besides the profit-view of the affair, how much nicer a building looks with a well-managed trained fruit-tree on its walls, especially when laden with its choice produce.

Whenever we see a well-furnished gable of this character, a clean garden, and a good boundary hedge, we may always augur well of the moral and industrial character of their possessor. These are not the sort of persons who are ever seeking parish relief. Self-reliance is manifest in the neat and thrifty garden of the humblest cottager.

In considering the subject of gables, it must be borne in mind, that there is no necessity to confine ourselves to one sort of pear alone. This would be very impolitic as to convenience, as it is quite easy to produce a succession of first-rate dessert or table-pears, on the same tree, from the Jargonelle in August to the Beurc-rance in March or April.

The cottager, however, may think it better to grow a glut of one kind, and to throw them into the market at once; but we do not, by any means, think this correct. This misapprehension of matters arises from the fact of the ordinary cottager being ignorant of the very superior character of many of the newer kinds of pears, both in point of bearing, keeping, and melting properties.

There are few cottagers but could find room to preserve a bushel or two of pears until the spring; and a couple of bushels of the Beurc d'Aremberg, or the Beurc-rance, sold in February, would go far towards paying the rent of a small cottage. These pears are not unfrequently quoted as high as fourpence each in the fruiterers' prices.

SOIL.—We may first advert to soil, though little can be added to our advice about stations (see p. 107); as, however, the tree on an extensive gable has a much greater space to cover, and as the dwarfing system, properly so called, will not answer the end in view, we advise a greater depth of soil; to which we would add, that it may also be of a more nutritious character. We would here urge, above all things,

the expediency of procuring a cart-load of the turfy soil described in *THE COTTAGE GARDENER* for December 7, under the head "Stations for fruit-trees."

Furrowings from good wheat soils are there recommended. If furrowings cannot be obtained, the ordinary soil will suffice; the turfy principle may be imitated, by using a more liberal amount of any vegetable refuse. We would, therefore, say, let the soil be prepared thirty inches deep, if the gable be large; if not particularly so, twenty-four inches may well suffice. By no means put any manure in the soil; this would ruin all. As before observed, fresh maiden soil, with some vegetable refuse, will be quite good enough, merely repeating the plan recommended previously, of using one barrow-full of rich soil at planting, to give the tree what gardeners term "a start." Of course an impervious bottom of stones or other hard material will be placed beneath the soil; this proceeding is described in the Number for December 7th.

If the situation is naturally damp, one-third of the bulk of the station-soil should be above the ordinary ground-level; if a very dry subsoil, no elevation is necessary.

Some persons would seem to imagine, that it is absolutely necessary to have the ground cultivated over the surface of the roots. We beg, once for all, to aver, that it is a sad fallacy, not only in this case but in that of most other fruit-trees.

We know that good fruit-cultivation may be carried out, with both digging and manuring, by persons of much knowledge in the habits of fruit-trees; but we also know, that a much superior, and certainly a more simplified, system will be found in a total withdrawal of surface-culture amongst fruit-trees; and this we hope to prove in many ways during the progress of *THE COTTAGE GARDENER*. In the meantime we say, attend to the principles here laid down as to soil, drainage, &c., and then you may lay a pavement over the soil as soon as well settled; this, however, will not be for some six or eight months at least after planting. During this period let some thorns, or other defensive bushes, be placed before or over the soil containing the roots of the tree; let no treading or rambling over it take place until the pavement is down. Let, also, the pavement be laid during a very dry period, and then we will guarantee the whole proceeding as a successful one.

STOCKS FOR PEARS ON GABLES.—Herein much room is offered for advice. Persons who are not thoroughly experienced in pear-culture may think that an unnecessary amount of importance has been attached to this matter. Not so, however. There are certain points connected with all affairs which at first sight appear inexplicable or trifling, but which are really most necessary to observe: so it is with many gardening practices. It unfortunately happens, however, that gardening, as well as other arts, has had its quacks; these are the gentlemen who mysticise. Our object is to simplify such matters.

The kinds of pears are so various in habit, as to the amount of luxuriance, and the circumstances under which they produce blossom-buds, that much may be done in the way of either excitement or control, in order to render them profitable. Thus some kinds, as the *Beurré-diel*, the *Glout Moreceau*, the *Beurré d'Arenberg*, the *Beurré-rance*, &c., might answer well on quince-stocks, provided the soil was generous; whilst such as the *Winter Neils*, the *Nepus Meuris*, the *Beurré de Capiaumont*, &c., would, on such stocks, never cover an extensive gable, even in the richest of soils. Under these circumstances, therefore,

and in order to simplify matters to the cottagers, we would advise the use of the free, or wild, pear stock, for gable-grown trees.

TRAINING.—Gables are generally lofty, and we think that one main leader carried up the centre, with shoots proceeding at a right angle, right and left, is above all others the best form, more especially if a chimney-shaft proceeding up the middle causes a greater height at that part. In other cases the old fan shape may be successfully adopted. We care little, however, for modes of training; still those who would make a good thing of a gable pear, must set out with some system. About modes of training under various circumstances, we will hereafter offer advice.

SELECTION OF THE TREE.—We should prefer what is called a half-standard in the nurseries, especially if having a leader, and a pair, or a couple of pairs, of horizontal or side shoots, right and left. These we would at once train accordingly, and carry the central shoot or leader up the centre in a direct line, dividing the gable into two equal parts. This leader ought, when the tree is established, to be made to produce four shoots annually from its sides. Those shoots, and, indeed, the whole of the side shoots, should be nearly or quite a foot apart. Therefore it follows, that two feet of a main leader would be requisite, in order to produce two pairs of shoots. And so it would, but it is not always possible to secure two feet. Another plan is sometimes resorted to, and that is to pinch off the growing point from the young leaders in the month of June, as soon as advanced one foot from the last pair of side shoots. This shoot, if luxuriant, will in three weeks shoot again; and a pair must be selected as side branches, and another leader carried straight ahead, which, at the ensuing winter's pruning, may be some twenty or thirty inches in length; all this, however, must depend on the sort and the soil.

We hope these explanations will suffice, with a little of individual ingenuity and perseverance, to enable our friends to carry out successful gable-culture. We must, however, offer a concluding remark on a very important part of the business.

TYING DOWN SHOOTS.—Our practice is, and has been for many years, to tie down young shoots during the growing season on the side or other branches. This matter has so extensive an effect, both on the pear and other fruit, that we intend offering an article or two on it alone. For the present, therefore, we say, let the main side branches be viewed in the light of a trellis, on which to train any other kinds which may be grafted on their surface. A *living* trellis to be sure they will be, and this is requisite. They will, by a little labour, both carry the fruit of their own and other kinds; indeed, on a large gable, a very nice collection may be established on one shoot. Of this, however, more shortly.

One piece of advice is still necessary. We would recommend the planting of a tree which had been grafted with a useful kind of strong growth, grafted on a pear stock. The *Glout Moreceau*, the *Beurré-diel*, or even the *Maria Louise*, we would recommend; but, whatever the kind be, it should be possessed of a strong constitution, and also be a truly useful kind; constituting in itself a kind that could not be dispensed with, and out of which it would be desirable to have a liberal produce.

We come now to the close of the year. Time lost cannot be regained, as we all know, and it will be well for the cottager, during the long winter evenings, to examine his course of culture pursued during the past year, in order to trace to their source any failures that

may have occurred, so as to lay the foundation of improved practices. Let no man suppose that he has nothing which he can improve. For our own part, we can never find any gardening practice so complete but that we can fancy some amendment.

One improvement generally begets another; and our gracious Creator has so ordained these things, that not only profit, but an unfailling source of interest is provided for the minds of the most humble, in all matters connected with the soil, provided they persevere with an unflinching resolution.

ROBERT ERRINGTON.

THE FLOWER-GARDEN.

FERNERY (*continued*).—The weather having been propitious, we trust that some of our readers have made a beginning to form a habitation for those lovely plants in whose praise we have descanted pretty largely in some of the late numbers of this work. We gave in the eleventh Number a copious list of such species as inhabit this country; but, as ferns are more or less distributed in all climates, we can scarcely consider we have done justice to the subject without enumerating such species as are hardy enough to live in the open air of this country, though natives of foreign localities.

We shall proceed, therefore, to lay before the fern collector a list of hardy foreign ferns, in doing which we are in some difficulty on one point, and that is, the aspect or situation in which they are found. No work that we know of in our language gives us this information: therefore we must, from experience, learn what situation in, or on, the fernery to plant them, so as they may thrive well. Neither can we inform our readers where they can be procured,—at least, the greater part of them. Some are in one or two nurseries near London, but they are by no means common. Perhaps, should this paper fall into the hands of some of our continental friends, they may obligingly benefit our English gardeners by making the matter known, through our columns, what species of the following list are in their collections:

Adiantum pedatum. Bird's-foot maiden-hair. North America.	Cheilanthes gracilis. Graceful Cheilanthes. N.A.
Aspidium acrostichoides. Acrostichum-like shield-fern, do.	" vestita. Clothed ditto. N.A.
" novaboracense. New York shield-fern, ditto.	Davallia pilosiuscula. Rather hairy davallia. N.A.
" fragrans. Scented shield-fern. Siberia.	Gymnogramma leptophylla. Slender-leaved gymnogramma. South Europe.
" marginata. Margined shield-fern. N.A.*	Lycopodium Carolinianum. Carolina club-moss. N.A.
" intermedia. Intermediate ditto. N.A.	" complanatum. Smooth-leaved ditto. N.A.
" rigidum. Rigid ditto, South Europe.	" dendroideum. Treelike ditto. N.A.
" atomarium. Atomed ditto. N.A.	" alopeuroides. Fox-tail ditto. N.A.
" bulbiferum. Bulb-bearing ditto. N.A.	" rupestre. Rock ditto. N.A.
" alpinum. Alpine ditto. South Europe.	" ornithopodides. Bird's-foot-like ditto. N.A.
" montanum. Mountain ditto. Switzerland.	" helveticum. Swiss ditto. Switzerland.
Asplenium rhizophyllum. Rooting-leaved spleenwort. N.A.	" denticulatum. Toothed ditto. Ditto.
" angustifolium. Narrow-leaved ditto. N.A.	" apodum. Stemless do. N.A.
" ebeneum. Ebony-stalked ditto. N.A.	" incidulum. Shining ditto. N.A.
Botrychium fumaroides. Fumatory-like moonwort. Carolina.	Lygodium humilis. Dwarf snake-tongue. N.A.
" dissectum. Cut-leaved ditto. N.A.	Asplenium Petraiche. Petrach's spleenwort fern. France.
" virginicum. Virginian ditto. N.A.	" melanocaulon. Black stalked ditto. N.A.
" obliquum. Oblique ditto. N.A.	

* N.A.—North America.

Asplenium thalypteroides. Thalytris-like ditto. N.A.	Polypodium virginianum. Virginian polypody. N.A.
" Hallerii. Haller's do. Switzerland.	" hexagonopterum. Six-angled ditto. N.A.
" Michauxii. Michaux's ditto. N.A.	" connectile. Connected ditto. Canada.
" montanum. Mountain ditto. N.A.	Pteris pedata. Footed brake. Virginia.
Onoclea sensibilis. Sensitive Onoclea. Virginia.	" argentea. Silvery brake. Siberia.
" obtusilobata. Blunt-lobed ditto. N.A.	" atropurpurea. Dark purple stemmed ditto. N.A.
Ophioglossum lusitanicum. Portuguese bird's-tongue fern.	" caudata. Tailed ditto. N.A.
Osmunda cinnamomea. Cinnamon osmunda. N.A.	Struthiopteris Pennsylvanica. Pennsylvanian ostrich-feather fern.
" Claytoniana. Clayton's ditto. N.A.	" germanica. German ditto.
" interrupta. Interrupted ditto. N.A.	Woodwardia angustifolia. Narrow-leaved Woodwardia. N.A.
" spectabilis. Showy do. N.A.	" Virginica. Virginian ditto.
" gracilis. Slender ditto. N.A.	

FERNS IN GLASS-CASES.—There is yet another method by which ferns may be cultivated successfully even in the heart of London and other large towns. We mean growing them in what are commonly known as *Wardian Cases*, from their being first made known by a gentleman named Ward. In Wellclose-square, in the heart of London, this gentleman has cultivated successfully those delicate plants to the highest degree of luxuriance and beauty. Some inquiries having been sent to us on this subject by a correspondent signing himself "A Working-Man," and having had some experience in furnishing Ward's Cases, we shall proceed briefly to give such information about them as will, we trust, be useful to many of our readers.

A Ward's Case is nothing more than an oblong box, about five inches deep, with a ledge all round the top. Upon this ledge rests a glazed frame, in shape like a Lilliputian span-roofed hothouse. It is generally as high as it is long. "A Working-Man" describes his as being "two feet high, one foot and a half long, and fourteen inches wide." This, however, is rather too high in proportion to the length. We should recommend one of the following proportions: four feet long, two and a half feet high, and eighteen inches wide. Such a one, handsomely made, glazed, and painted, would cost about £3 10s. or £4. The glazed part should be separated from the bottom, so that when the ferns require anything doing to them, it could be lifted off, the work done, the glass cleaned, and then set on again. A glass door in the centre is also desirable; as, when the atmosphere is colder outside than inside the case, the moisture condenses on the glass inside, and the beautiful inhabitants are almost invisible. This renders a door useful. Open it a very short time, and the moisture or steam will evaporate or dry away, and the little paradise will again show its beauties to the admiring spectator.

THE SOIL to grow them in is rough fibrous peat, the finer parts being sifted out, and the rest broken by the hand into small pieces.

TEMPERATURE.—Wardian Cases should always be kept free from frost. If the hardy ferns only are cultivated, the case may stand upon a balcony or window-sill; but if the case is placed in a room where a fire is kept, exotic ferns will thrive in it luxuriantly. The temperature of a living-room is generally between 50 and 60 degrees of Fahrenheit's thermometer; and supposing the case to be in a room of that description, the list on our next page will be suitable for our friend "A Working-Man's" case.

WATERING.—To his next question—how often water is required?—it is somewhat difficult to give a satisfactory answer. So much depends upon whether the sun shines upon the case—whether the plants are

growing and in health—and the retentiveness of the peat in which they are planted, that our answer must be rather a vague one, only amounting to this,—that if the earth is dry inside, or below the surface, it requires water. If the plants are growing luxuriantly, they require more water than when the leaves (or fronds) are matured or going to rest. If the sun shines on the glass, we may expect moisture will be drawn up from the soil by the heat, and, consequently, a small quantity of water will be required. In all the operations of gardening there is not one that requires such nice discrimination, such good judgment, as the timely and proper application of water. It is impossible to give such minute instruction in regard to watering, so as to be quite sure we have well informed the operator. Observation and experience are the best, the safest guides in this important matter. Wardian Cases, however, very seldom require watering. We have known some that have not been watered for twelve months, and yet some of the plants had grown remarkably strong. We do not recommend such an extreme. Examine the soil, as we said before, and if it is dry, give a little tepid (lukewarm) water. Do this during the morning, and leave the door open for an hour or two, to carry off the superfluous moisture in the air.

The following ferns are suitable for a small Wardian Case in a room :

Adiantum cuneatum.	Wedge-	Cœnopteris circutaria.	Cowbane-
leaved maiden-hair.		like Cœnopteris.	
" trapeziforme.	Tra-	Doodia aspera.	Rough doodia.
peziform-leaved ditto.*		Gymnogramma	Leptiphylla.
Aspidium proliferum.	Prolif-	Slender-leaved Gymnogramma.	
erous shield-fern.		Lycopodium	stoloniferum.
Asplenium obtusatum.	Obtuse-	Creeping elub-moss.	
leaved spleuwort.		Nephrodium pectinatum.	Comb-
" odontitis.	Toothed	like Nephrodium.	
ditto.			

The above ten ferns will be sufficient for "A Working Man's case." We shall be glad to give a larger list to any one that has a larger-sized case.

Some of our cottage friends are ingenious enough to make such a case for themselves. We trust, also, that there are a goodly number of them who are lovers of plants, and who would not think it much trouble to make a case for plants. Should they not be able to purchase glass, the frame might be covered with oiled paper, and the ferns would live and flourish under it nearly as well as under glass.

The following plants will thrive under a cover of this kind:—*Sarracenia purpurea* (Purple Side-saddle Flower), *S. flava* (Yellow do.), *Cypripedium insigne* (Noble Ladies' Slipper), *C. venustum* (Charming do.), *Yucca pilamentosa variegata* (Variegated Thready Adam's Needle), and some of the more woody *Mesembryanthemums*, or ice-plants. On the ribs of the roof some eyelets, or rings, may be fastened, and suitable plants procured to hang from them. This will materially add to the interest of the miniature conservatory. We have used the following with success, for this purpose:—*Epiphyllum truncatum* (Truncated Epiphyllum), *E. truncatum violaceum* (Violet-coloured do.), *Cereus flagelliforme* (Whip-formed *Cereus*), *Tillandsia purpurea* (Purple *Tillandsia*), *Linaria Cymbalaria variegata* (Variegated Cymbal leaved Toad-flax). Some of the long leaved ferns also thrive well thus hung up. The ball of earth belonging to each plant should be wrapped up in a little moss, tied round with some copper wire, leaving a loop outside to hang them up by; or they might be suspended in small baskets, made of copper wire, or

china, or even gutta percha. One of the last-named material, about the size of a breakfast-cup, was shewn us by a friend a few days ago, and a neater little thing for the purpose cannot be conceived.

We have taken up so much room this week on the above subject, that we have not much space left for florists' flowers, but we trust all we have written will be interesting to most of our readers. Every one can have a Wardian Case, and so enjoy a garden in their sitting-room, and daily admire the beauties of those tiny lovely plants.

FLORISTS' FLOWERS.

CARNATIONS.—At this time of the year the carnation requires but little care. On all fine days give plenty of air to the frames. Give water when they appear dry early in the morning, with moderately-warm water. Examine the pots and sides of the frame to see if any snails are lurking about, and destroy them. Although carnations are perfectly hardy, yet it is scarcely safe to expose them to severe frost. Let them be covered up with double mats on the least appearance of hard weather setting in. We shall describe the method of layering and piping those plants at the season for performing those interesting operations. Carnations may also be raised from seed, but the chances of raising a good double flower are so small, that it has been said by an eminent florist that "one standard good variety is a reward for a lifetime." For border purposes it is indeed worth while to raise seedlings. The cottager should try to remember this—*A cottager is quite as likely to raise a fine flower as the best florist in the kingdom.* Let him apply to a respectable seedsman for a paper of seed, perhaps six pennyworth; for that money he will have as much seed as will raise him 150 or 200 plants, three-fourths of which will very likely be double. Sow the seed on a warm border, about the middle of March, and when the plants are up about an inch high, transplant them into a bed in an open place, four or five inches apart. They can remain in this bed till they flower the following season, when all the single and bad coloured ones may be thrown away. Should any of the rest appear to be pretty good, they can be increased by layering; instruction about which will be given at the right time.

T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

AMARYLLIS.—The great mass of bulbous-rooted plants, passing under the common name of "Amaryllis" among general observers, is divided in books into a number of different groups or genera; each group having something in its nature different from the rest, and consequently requiring a different management. For instance, one group grows in summer and rests in winter; another group grows in the winter and rests during the summer. Some of them flower in the spring; some in the summer; and others in the autumn. Again, some of the plants are hardy, or half-hardy; others of them require a greenhouse or good pit; while a third portion will not live with us without the aid of a stove or hothouse. It is, therefore, self-evident that if their natural habits are to be

* Trapezium is a four-cornered figure—best described as being a square, having unequal-lengthened sides.

attended to whilst under cultivation—and they will do no good unless they are—the various groups must be very differently heated at different times of the year. No wonder, therefore, that a gardener is much puzzled when he is asked a question, as “What is the best method of growing the amaryllis?”—and I have that question now lying before me. An answer to a question so general, would be as likely as not to lead the inquirer in the wrong direction. To be of any use it could only affect one particular group, and perhaps not more than a single plant of the amaryllis tribe. Unless, therefore, he who seeks for information is able to state to what particular group his plant or plants belong, the chances are that, if he asks for advice respecting their management, he will be informed, unintentionally, in the wrong way. In this article, therefore, I shall run over the principal divisions of the amaryllis, and give the proper treatment for each; recommending those plants that have showy flowers and are easy to manage.

The oldest amaryllis in England is that plant which has gone under the name of the *Jacobau Lily* for many years; and what is curious enough, until the last few years no one knew how it found its way to England, or from what part of the world it came. It is now known to be a native of the temperate regions of Mexico and Guatemala, or what is now called Central America, and is found to be quite hardy in England, if planted in front of a greenhouse, or in dry earth anywhere, provided it is placed six inches below the surface; and you know potatoes will live out an ordinary winter at that depth. Therefore, if you have got a garden, or any piece of ground, you may manage it as easily as potatoes, and very much in the same way, and in that way it will increase by offset-bulbs faster than you can find room for it. What becomes of the very old plants of it I cannot say, but I never saw a young or old one dead yet: so there is not much fear about your losing it. It will not flower in England unless it is taken up in the autumn, as soon as the frost comes, and dried like an onion; that is, letting its leaves and roots shrivel up in the drying, before they are cut off. Then you may put it in a paper bag, and hang it up in the kitchen for three months; a cooler place will not suit it nearly so well. In the spring you may pot it in any good kind of mould in a damp state, and it will suck in sufficient moisture, without being watered, to set itself growing; and by the time the leaves are three or four inches high the flower-stalk will push up, and then water it freely every day. All this time it will do in the window or in a greenhouse; but when the flowering is all over, you should plant it out of the pot into a border, and water it occasionally in dry weather till late in the autumn, when you must take it up as before. When you have several roots of bulbs or this plant you can pot a couple of them, at intervals of a fortnight or three weeks, in the spring, to prolong their season. The flower-stalk seldom produces more than one flower, and never more than two, but the flower is large, and of a gorgeous colour, dark purplish red all over, and the whole flower stands nodding down on one side of the stalk, giving it a peculiarly graceful appearance. It has never been known to seed, nor will all our skill make it breed with any other sort. I suppose it is for these unsociable qualities that they have given it such a hard Latin name in books, as *Sprekelia formosissima*.

The next amaryllis I shall name is the most common of them all, and often called the *Bella-donna Lily*; a name given to it in Italy, where it grows as well as it does at its native place—the Cape of Good Hope.

In all probability it was the first plant that was introduced to Europe from the Cape by the Portuguese navigators or Dutch settlers. At any rate, it is the type of the true amaryllis family, of which there are only two or three more sorts, all from South Africa, and nearly hardy with us. The word amaryllis was the name of a beautiful woman, immortalized by Virgil, the Mantian bard, as the *Bella-donna* of one of his earliest poems. When Linnæus undertook his great reform in the system of naming plants, he applied Virgil's name of a beautiful lady, *Amaryllis*, which was handed down from the poet's time as proverbial for loveliness, to those beautiful plants called *Bella-donna lilies* by the Italian gardeners. “It was the exquisite blending of pink and white in that flower, as in the female complexion, that suggested the common name in Italy; and to those lovely tints Linnæus referred, when he assigned to it the name of a beautiful woman.” (Herbert.) How absurd, therefore, to have broken these playful associations of the great botanical philosopher, on which he first founded the genus, by associating with it either such green-eyed and parrot-coloured faced ladies, as *Aulica*, *Catyptrata*, and *Vittata*; or with such bearded and yellow, copper-coloured Indians, as *Bracteata*, *Equestris*, and the whole race of *tubulosum*, which have hardly any parts in common with our beautiful *Bella-donna*.

Where the soil is suitable, the *Amaryllis Bella-donna* will live out of doors with us, and flower every autumn; but it does not like to be often disturbed, or any capricious treatment. A south aspect, under a wall or in front of a greenhouse, being all the shelter it requires. In some soils, however, it is next to impossible to flower it, and then it increases by offsets much faster than when it flowers regularly. The cause of its not flowering can only be a mere guess; therefore the best way is to take it up about the end of June, change the soil, and make a new border for it. If the *Bella-donna* has remained several years in the same place, the roots have worked down very deep; and if they got into a wet subsoil, that may have been the reason of its not flowering; for unless the roots are kept dry from the end of May to the end of August, it will either not flower, or, at best, not very freely. Perhaps the bottom soil may be too poor and dry, and in this case the plant has not nourishment sufficient to produce a vigorous growth in the leaves, and then a liberal watering once a week will be very likely to overcome the soil. It is of little use to water bulbs in the common way, especially if they have been long in the same place. The way to get at them is this;—take a pointed stick (the handle of a hoc or rake will do), and make half a dozen holes round each patch of leaves, and as deep as your arms can push the stick. Pour the water gently into these holes from the spout of a watering-pot, and, if you are quite satisfied that the bottom of the border is too dry, one whole watering-pot full will not be too much for every patch the first time, and half that quantity at each watering afterwards, and you may continue these weekly doses till the middle of April; for if the bulbs are in active growth, and have good drainage, they will take an enormous quantity of water. It is a good maxim which says, “let well alone;” yet I would not leave the *Bella-donna* more than six years unreplanted, even if it flowered every autumn; but as its roots do not die annually, as those of some bulbs do, the work of transplanting them must be very carefully performed; all the roots ought to be preserved as much as possible, and as soon as you get them up, lay the bulbs on their sides in a row, and throw some earth over the

roots. It is a strange notion to suppose, as some people do, that the roots of such bulbs are not very necessary for them! It is true that they can renew their roots if they are damaged, but then it is at the expense of their store of sap, which ought to go for leaves and flowers next year. The instances of a contrary practice with tulips, hyacinths, &c., without any bad effects, is familiar enough, but the roots of these plants die naturally every year: not so, however, the roots of the amaryllis, and the older the roots are the better they will flower. I once received a parcel of amaryllis bulbs from a gardener, and though I gave him instructions about saving the roots, and the time I wished them, he took them up at the end of May, a month too soon, and cut off all their roots; consequently, though they flowered regularly in his garden for twenty or thirty years, it took me five years to get them round. It is much easier to manage the *Bella-donna* lilies in pots in a pit, as you can regulate their treatment with some certainty—but their flowers are not nearly so fine in pots; and as the flowers appear before the leaves, like the Guernsey lily, many people object to them on that account, alleging that it is “uncomfortable” to see plants flower without leaves, especially in pots. Like all bulbs from hot countries, the *Bella-donna* ought to be wholly covered with the soil in a pot, as when they are at rest it is difficult to find a place sufficiently dry to suit them. The air of our climate in the driest season is altogether too moist for many bulbs; but when they are covered with a crust of dry earth they are safe enough from its effects. Strong rich soil, and large pots, free ventilation, a vigorous growth from December to the end of March, after that water very gradually withheld, and the pots when dry placed in the hottest end of a shelf in a greenhouse or close pit, are the chief requisites for bringing out the *Bella-donna* as fine as pot-cultivation can do it. About the end of August place the pot in a saucer of water for four-and-twenty hours, so that the whole mass of soil may become just wet, and keep it merely damp for a week or two; by that time, if all is right, the flower-buds will sprout; but do not give much water till the leaves are two or three inches long, for plants without their leaves can use little water, and many bulbs perish with too much water at first.

There are half-a-dozen more amaryllises which require *exactly* the same treatment as the *Bella-donna*, and that is the reason why I said so much under that head. These are only first cousins, not sisters, to the *Bella-donna*. They are called *Brunsvigia*, a kind of complimentary name, in honour of the noble family of Brunswick, from whom our own gracious Queen is a descendant; so that it is easy enough to think of this name. Their bulbs are much larger than those of *Bella-donna*, and if they are left above ground, or half out of the soil in the pot, they never do much good. They like very strong loam, but no manure mixed with it. If the pots are well drained, as they ought to be, you can hardly give them too much water in winter. Some gardeners place them in hot-houses, thinking to hurry them on; but, being of a noble race, they resent this trespass on their dignity—they must have their own way. It is true they make a very rapid growth, like all the bulbs of South Africa, in their native wilds, as they can only grow during the rainy season, which in that country is not much above three months in the year, and when the rains are over they are almost baked with the drought; and we ought to imitate that dry heat as much as possible when they are at rest with us, by placing the pots where the sun strikes hottest about the premises. There is another peculiarity belonging to them, which

puzzled all the gardeners for many years. Their roots never die of themselves, and, if they meet with no accident, will penetrate down, in the course of years, beyond the influence of the annual droughts, and at that depth they have some moisture, more or less, all the year round. Now, you could hardly believe that we could imitate this part of their natural condition. If we put the pots in saucers when they were dry, and give a little water now and then, we could not so regulate the supply as to prevent the soil imbibing part of it; and the soil cannot be too dry, when they are at rest: many experiments failed, and hundreds of bulbs were destroyed before we overcame this difficulty; and it is the simplest thing in the world after all, merely placing the pots in deep saucers, and two inches wider all round than the pot, then filling them brim-full of sand, and by only keeping this sand moist, the bottoms of the pots are kept uniformly damp; and thus the best part of the roots are kept from drying too much, while the bulbs are as dry as our climate can make them, and the treatment is so near to their natural condition, that they flower regularly under it. In 1844, 1845, and 1846, I received a large assortment of these direct from the Cape, some of them not in the best condition. After establishing them in pots, I planted them in a border in the open air, from which frost can be kept, and now most of them have so far recovered as to begin to flower. This rainy season seems to have suited them; and yet in dry seasons they do not like to be watered all over their leaves, only at the roots.

There are many kinds of bulbs from the Cape colony, near relations to amaryllis, which will all do under the above treatment; and one peculiarity belonging to them is their dislike to close confinement, and yet they are fond of heat. They also require their roots to be three years old before they will flower; so that when once they are disrooted, no matter how old the bulbs may be, it will take three years to establish them again. We often see large imported bulbs of them flower a few months after their arrival; but such flowers were formed before they were disturbed in Africa, and of course had nothing to do with our kind of cultivation; but I believe no one has ever seen them in flower the next two years, or hardly in the third season, owing to their roots having been destroyed when they were taken up. Now this is the whole secret of the supposed difficulty in flowering Cape amaryllises. They are not allowed a uniform mode of treatment to enable them to establish themselves, before it is possible for them to flower; no, all kinds of experiments are tried to induce them to flower sooner, and when hot-beds, or house-culture, form part of such experiments, the remedy is worse than the disease. The only way that I can conceive artificial heat likely to be useful in such cases, is to plunge the pots in bottom heat of 85 or 90 degrees, without any close covering over them; but as all the true amaryllises grow only in winter, that treatment would only suit the allied sorts, which grow in summer, and have persistent leaves, that is, retaining their leaves all the year round. In the whole range of gardening, I do not know where there is a greater opening for improvement to an amateur, than in the tribe of half-hardy bulbs from different parts of the world. A good greenhouse, one pit for such bulbs as grow in winter, and another pit for those which make their growth in summer, good peat-earth, strong loam, and sand, from which different degrees of compost could be made, and a good stock of patience and perseverance, are the necessary requisites for the undertaking.

D. BEATON.

THE KITCHEN-GARDEN.

DUST AS A PROTECTOR.—If frost does, or is likely to prevail, do not omit to follow our directions for protecting peas, beans, autumn-sown onions, young lettuce plants, cauliflower plants, late pricked-out cabbage plants, or any article that may require it, by shaking dry dust about them. It is really a valuable article for winter protection, for it is at the surface of the soil the most serious mischief is always done to vegetation in the winter months, either by wet or frosts.

ENDIVE.—Successions of this should be taken in as previously directed, and the successional crops protected against severe frost.

RADISHES, &c.—If the weather continues open, a warm border should be chosen for sowing radishes and early horn carrots.

CUCUMBERS.—Succession of cucumbers should be sown; and the plants already up in the seed bed must be well protected. If in frames, or pits, depending on heat from fermenting materials, they should be kept pretty close to the glass, lightly plunged in charcoal dust, or half-decayed leaves, and a space left all round inside next the frame, or brick-work, to allow the heat a free and kindly circulation; for, to insure success, the heat must be applied at the upper part by keeping the linings in heat and well topped up, protecting them with dry mould, refuse, hay, fern, or any dry rubbish, to absorb the moisture and maintain one regular uniform heat. If the linings are above ground, their outsides should be also protected with furze-fagots, or long thin fagots made up of any kind of rubbish, prunings, Scotch fir, spruce, or any kind of evergreen boughs, or heath, and a thin feather-edged board run along the top next the frame, and close inside the lights, to convey away the superfluous water. These precautions are to keep the linings from being chilled. Those cucumber plants already turned out and making growth must be carefully attended to, by gentle application of tepid (luke-warm) water, and the inside of the frame, or pit, next the lining, should every afternoon, at shutting-down time, be sprinkled too with tepid water, if the weather will permit its being done: that is, if not excessively cold. This will maintain a healthy moisture within the frame, keeping off those obnoxious insects, wood-lice, thrips, and red spider, &c.; for these obnoxious vermin revel in a dry husky atmosphere, which does not either suit or maintain a healthy vegetation.

MELONS also should be sown. The early green Persian is an excellent variety to commence with, coming into bearing quicker than the Beechwood, which, however, should be sown in succession, and then Fleming's Hybrid.

SEED LIST (continued).—**CARROTS.**—Every one is well aware that the Early Horn is the best early carrot for all purposes of sowing, either upon heat or warm borders, and is a very good-coloured and flavoured root through the summer and autumn months. The Green Top and White Belgian are the most prolific to cultivate to an extent required by the amateur or cottager for his cow, for which they are a most valuable winter root. Indeed, we have this season grown quite as great a weight of the Green Top, on a piece of ground equally prepared, as we have of the Belgian White. The Long Orange and Surrey Carrot are well known—long, tapering, handsome varieties, of superior colour, for table, and should be grown, if the land is of kindly quality for their growth: viz., a good open, sandy loam, well

trenched and pulverized. In sowing carrots, they should be drilled in rows, one foot apart, which should be the distance for all kinds of carrots, and they should not be sown until a real healthy tilth is procured. For sowing, choose a calm sunny day, mixing and parting the seed in good, dry, fresh wood-ashes, and applying, also, in the drills, a goodly sprinkling of fresh air-slaked lime. 300 cwt. of fresh, or newly-burnt lime, procured and laid in a shed or covered place, to be slaked by the atmosphere, instead of applying water, or slaking it out of doors, is what we mean by being air-slaked. 300 cwt. will be sufficient for 100 rods or poles of ground, if applied properly in the drills, when formed at one foot apart. I know of no produce more useful or profitable to those who keep a cow or horse than a good carrot crop; and it only requires to be methodically attended to, to insure one. Carrots do not require a quantity of fresh manure. On the contrary, it is more likely to be an injury in producing a fungus, known as the scab, or it at times produces numerous insects injurious to the root. Fresh soil, well winter-trenched or subsoiled, pulverized, and well worked in drying March windy weather, is the best preparation for carrots. They should not be sown too early or too late; if sown too early, many start for seed the same summer and autumn, particularly if those seasons are dry. If sown late, they do not reach their proper size; consequently there is a deficiency either way in the produce. For a main crop of carrots, after preparing as above described, a suitable day should be watched for committing the seed to the soil, between the 21st of March and the 14th of April. The last week in March, or the first week in April, is our chosen time, if everything is in that kind of order one could wish, and the weather, of course, quite suitable. We sowed about equal quantities of Surrey, Green Top, and White Belgian carrots, in the first week of April last, on ninety-nine rods of ground exactly, and the produce of roots was very even and fine, clear, of good colour, and not a blemish to be found on them. The weight of the produce was nearly seventeen tons, which, at £2 per ton, makes them worth something considerable. My readers may depend upon it that the earth, with a little methodical management, is capable of, and would produce, crops that would prevent any need of corn importation, or of agricultural produce of any kind, into this country. I am quite certain that if the culture of the soil were better understood, allowing even the increase of population to proceed at the rate it is still doing, the earth would be fertile in proportion, were improvements to keep pace in the ratio of which they are capable. JAMES BARNES.

MISCELLANEOUS INFORMATION.

COTTAGE FARMING FOR JANUARY.

It so happens that, amongst our cottier population, many possess, or hold, an amount of land which makes them something more than mere cottage gardeners. In fact, they keep a cow, or it may be a couple; and this, of course, increases generally the number of pigs. Many also, engaged in commercial pursuits, in the suburbs of our busy towns hold a few acres of land, and keep a cow or two likewise. In these cases it becomes essential so to modify the usual routine of garden cropping as to meet the consequent demands.

We have paid much attention to such matters during the last twenty years, and feel persuaded that there is much room for improvement in the course of culture pursued by such holders. Amongst many other items of great importance, the rotation of crops is very far from being judicious in a majority of cases. "*Mixed cropping*," too, about which little was heard until the unfortunate potato disease commenced, has since that period assumed much importance, as indeed it might justly do.

The cultivation of our valuable keeping-roots, as mangold, Swedes, carrots, and parsnips, has advanced in notice as the potato lost its original ground; and such, with the introduction of some very useful things of the cabbage or brassica tribes, have already begun to form, as it were, a fresh era in cottage economy.

Before proceeding to offer advice on such matters, we would beg to be understood as making no suggestions but what have resulted from, and have been tested by, experience. Theoretical knowledge is out of place here; whatever results may follow from some of our more modern speculative improvements, such, we think, must be tested by other hands, again and again, before we shall venture to recommend them to the cottager.

MIXED CROPPING.—We have often conversed with farmers, who, being from the first accustomed to a course of culture which was supposed to require a lay or rest state under grass, every three or four years, have at once pronounced it impossible to continue cropping a piece of ground without this periodical rest. And, indeed, with the moderate amount of manures they can afford, as compared with the quantity necessary for land always "up," or under culture, it would be next to impossible. We have, however, ourselves grown mangold wurtzel on the same piece of ground for at least fourteen years successively, as a part of a system of mixed cropping; viz., alternate rows of mangold and potatoes, at thirty inches between row and row; the only change being this—that the potato rows this year would be mangold rows next, and so on, changing about.

So that it is manifest that a plot of ground, under judicious rotations, may not only be kept under culture for very many years with much success, but that even one kind of crop alone, with the trifling alteration above mentioned, may be cultivated. Indeed, our mangold has astonished the neighbouring farmers, being generally roots of from ten to sixteen pounds weight. The manure has been principally that of the pig, to which we have latterly added salt and soot.

As arguments for a course of mixed cropping in small allotments, we would urge the following:—In the early spring months, the cottier's overtime hours are very limited in character. In the month of March, for instance, when the cottager is obliged to perform many of the operations connected with the rising year, he can, on the average, not be employed more than two hours in a day, overtime, in his own garden. Now this is a very short period in which to attempt to dig two-thirds of his garden over. The consequence is, that he is obliged to withdraw himself from his daily labour at intervals; and this at the very period when his services are most required by his employer. Now, by a course of mixed cropping, he will be enabled to accomplish all these matters without abstraction from his daily labour; at least, on quarter-acre allotments this will be easily accomplished. This, we conceive, is a strong argument in itself: numerous and galling are the quarrels between the farmer and his labourer in some parts of the kingdom, on account of the latter's absence when wanted on the farm; it is a wound

which always rankles, on account of the anticipated recurrence of it, especially where the cottier holds an acre or two of land, and keeps a cow. We have had experience enough in such matters: for the cottier is naturally a weather-wise subject, and generally in such cases can determine which shall be a fair day, with much accuracy, betimes in the morning. On foul days, however, he may regularly be found at his ordinary labour.

ECONOMY OF SPACE.—This is our second argument on behalf of a system of mixed cropping. It is evident, that if a succession crop can be introduced, and one-third grown before the principal crop is off the ground, that both space and time are gained. For instance, we will suppose, simply, early potatoes in rows two feet apart, planted in February, and the thousand-headed cabbage, or green kale, introduced between the rows after the last earthing-up. This would be in the middle of May, when the cabbage, or other crop introduced, would be nursed, and one-third grown by the middle of July, by which time the potatoes would be off the ground.

BREATHING-TIME.—This will appear at first sight an odd title; but we do not, however, know of another which would better express the idea we would wish to convey. Such keeping, or store roots, as the carrot, the mangold, the parsnip, or Swede turnip, require all the sun-light our climate affords during August and September, in order to make them solid and give them nutritive, and, of course, keeping properties. Therefore, where *mixed cropping* is adopted as a system, things should be so managed, if possible, as to combine such crops with their culture as might either be removed by this period, or so reduced in bulk, or used up, as to throw all the influences of the autumn sky upon them. Keeping-roots thus become what the countryman calls "well fed," and, as before observed, more nutritious; they will also be more readily preserved than such as have been much shaded with other crops.

Enough, we think, has been said in favour of mixed cropping to induce the cottager to try a portion of his allotment under this course of culture. As, however, it is a matter which requires much forecast, and a correct knowledge of the habits of the respective crops, we shall, in the course of our labours, point out various modes of combining these things, and hope thereby to assist in paving the way to an improved course of culture, by inducing the cottager to give to them hereafter a greater amount of consideration.

We will conclude this month's labours by offering a few general maxims, which in the main will be found of use:—

1st. Endeavour to cultivate the allotment or garden in divisions; either three or four will be necessary. This, however, in future years will in part depend on the success of the potato crop.

2nd. Endeavour to keep one of these divisions entirely free every season of all the cabbage and green tribes. The cropping incessantly with these is one fruitful source of the plants becoming club-rooted.

3rd. Do not plant any of the cabbage or green crops as a principal; they are better adapted than anything else to introduce at any given time between or amongst other crops.

4th. Whatever mixed cropping be resorted to, let the "stolen crop" be of a different height, if possible; and in the case of the keeping-roots, endeavour to have the intermediate crop entirely off the ground during August and September.

5th. If manure is used for the carrot-crop, let it

be as old as possible, and dig it down very deep. None should be nearer the surface than nine inches.

6th. Do not, under present circumstances, use any manure for the keeping or winter potatoes.

7th. Manure very freely at all times for mangold, Swedes, cabbages, lettuces, and spinach.

8th. Do not manure for the onions, unless the ground is very poor. Moderate-sized onions keep far better than larger ones: they are also earlier off the ground. The great point is to get an early harvest of this root: they keep better, and the ground they are removed from may be manured and planted with cabbages in September.

9th. Always sow peas in single rows—each row by itself. One row of peas, standing alone, will produce nearly as much as two sown near together.

10th. Let all crops in rows, if possible, run north and south: they thus get more light.

11th. Do not plant or sow any crops on the fruit-tree borders, but what may be introduced with a hoe. We have grown good turnips of the Dutch kind on such borders by hoe culture alone, no digging being allowed.

12th. Always keep a seed-bed for cabbage and the various greens, and exercise forecast in sowing, to provide for known rotations.

13th. Let all ground open in November, and which is not to be cropped until spring, be dug deep and thrown into ridges.

14. Let all hedge dubbings and coarse weeds of every kind be collected to one spot, and burned or rather charred. October is the most eligible month for this process. The charred material must be put in an outhouse, or piled up, and cased with turves to keep it quite dry. These are some of the main points to which we would direct attention. We will soon deal with some of these matters in detail, or as forming part of a rotation of crops.

We would now advise the cottager to plant a liberal breadth of early beans as soon as Christmas is turned. A good chance will offer on ground intended for beet or mangold, for they will be off in time to pursue high cultivation with that crop. The same course may be pursued with regard to land for Swedes.

MY FLOWERS.

(No. 10.)

I HAVE never been able to decide whether flower-beds should be placed upon grass or gravel. In the summer the coolness of a lawn is delightful to the eye and to the foot, but in winter the wet and sponginess of the grass frequently prevents a lady venturing among her borders, and thereby she loses much pleasure and employment as the year advances. Then, again, gravel is pleasant and dry in wet weather, but is scorching and unrefreshing in the heat of summer, so that twice in the year my opinions alter, and I recommend every lady to leave her garden as she finds it, for much may be said on both sides of this question. Where beds are placed upon gravel, or bounded by gravel walks, box edgings are by far the prettiest. They are so sweet and aromatic after rain, and so neat and green if kept properly clipped, that I prefer it to any other edging. This is the season for planting box. Small rooted slips should be selected for this purpose, placed against the upright side of a small trench along the border, or round the bed they are intended to bound. The box should be clipped in June, in showery weather; never allowed to grow

thick and bushy, because it becomes a harbour for slugs, and the roots should be kept free from weeds, dead leaves, &c. It is most refreshing to inhale the smell of this rich, pretty plant, after summer showers. As shrubs, the variegated as well as the common kind are very ornamental, either standing alone, or grouped in shrubberies with other trees. When forming a large round shrub, with the lower boughs resting on the ground, it is very handsome, and should stand in a grass-plot or in a circle of its own.

Among the many sweet flowers that adorn our gardens, the heliotrope might be more generally cultivated; and a prettier or sweeter one a lady can scarcely possess. Its spicy odour attracts us to the border the moment we enter the garden; and when placed in single beds, the effect as well as the scent is very rich. I speak of them now, because cuttings may be taken as late as Christmas, and we cannot have too many in readiness for planting out. Place the cuttings in rich mould, three or four in each pot, according to its size, and keep them in a warm sitting-room, unless the garden should possess a cucumber-frame, which would do better. Pot them off into single pots when struck, and carefully remove all dead leaves and mouldiness which may appear, as these greatly injure the plants. When severe weather is over in the spring, turn them into the open border, in the warmest situation you can find. If cold nights occur, shelter them with hoops and mats. After flowering, cut them down to within a few inches of the soil, which keeps them handsome; those cut down in June will bloom again in August. We cannot adorn our gardens with more delicious flowers; and ladies do not encourage them much more than they do, probably supposing them to be greenhouse plants, and therefore too tender for common use. They bloom freely and unweariedly, and are invaluable as border-plants. I have seen them in the open ground, spreading themselves around quite wildly, and throwing their spicy shoots across the walk in rich exuberance. They are too fragrant for a room. No highly-scented flowers should be permitted there, as they are injurious to health, and affect some persons painfully; but in the open air we can enjoy the strongest perfumes safely, and the heliotrope may truly be said to scent the gale.

The pale, sickly blossoms of the monthly rose are still trying to cheer our winter garden, but they are so languid, and buffeted by wind and rain, that they do not greatly add to its beauty. We are most indebted now to that lovely plant, the Christmas-rose, hardiest of the hardy too, which blooms boldly and richly at this season. The large, white, rose-like flower stands amid the evergreen leaves, vying with many summer beauties, although frosts, and snows, and rains alone greet its appearance. I wonder that this flower is not more generally cultivated, given us, as it is, to enliven the dark and stormy days of deepest winter: but it should never be admitted among winter nosegays, for the perfume is unwholesome. Among the heathen of former days these flowers were considered as a charm against evil spirits, and were scattered over their floors, with songs of praise to the dumb idols they made and worshipped. It seems a singular and beautiful providence that this flower should bloom at Christmas, as if specially sent to remind our thoughtless hearts of that deep debt of gratitude we owe to Him who has called us out of heathen darkness into the light of the glorious Gospel; and by bringing the religious customs of savage ignorance into striking contact with those of Christian light, to point out to us the amazing change wrought

in the minds of men, from wild idolatry to pure and undefiled religion; and from the unhallowed rites of blind superstition to the reasonable service of the living God.

Woman has much in her power. Wives and mothers have great duties to perform; they are the mainsprings of the moral world: and even among their fragrant flowers they may cull instruction and impart lessons of wisdom,—for nature has many tongues. The holly and the Christmas-rose, belonging as they do to former times and customs, teach us to keep the great festival now passing more in the Christian than the Pagan manner,—for the idle mirth and revelry of Christmas festivity ill accord with the song that angels sung, or with the “good tidings of great joy” they brought to man. Let this brilliant flower and glossy shrub repay our care by urging us to value more deeply, and commemorate more suitably, the great deliverance wrought by Him who came to “save his people from their sins;” and then we may with confidence expect a blessing upon our “basket and our store,” upon our “fields and the fruit of our ground,” and “upon all we set our hand unto.” Let woman ponder these things; for while sharing in the labours and pleasures of her husband and her sons, she may sow “good seed,” that shall “spring up and bring forth fruit an hundred-fold.”

TANKS.

THERE is no greater improvement that can be introduced into cottage gardening than that of making use of tanks to receive the sewage, as you propose. The expense of construction is the greatest hindrance against their adoption; but if I can shew that very substantial tanks may be put up by a handy labourer, and at less than one-half the usual cost, it may induce many of your readers to give my plan a fair trial. To make more certain of my aim, and guarantee to yourself that I am not a novice in these matters, I send you my name and address in confidence.

I may remark, as a general rule, that it is never advisable to make liquid-manure tanks deep—as when a tank is to be cleaned out, the slush at the bottom is easier thrown out the nearer it is to the surface. The depth should not exceed four feet, and, unless a division be in the middle, to make a double tank of it, six feet may be wide enough—capacity may easily be given in the length. The sides and bottom I make of concrete, and a brick arch to cover them, thus: mark out the size you mean the tank to be on the ground, running a line down each side and across both ends, and with a spade make a mark along the line—outside this mark, dig out a trench four feet deep all round, and as narrow as your man can work it; from fifteen to eighteen inches will be about the width he will require to reach down four feet; let him form the sides of the trench quite even, and slope *inwards* three inches from the perpendicular. In this trench concrete is poured in to form the walls of the tank, the same way as melted lead is thrown into a mould; the reason for departing from the perpendicular will now be apparent; the concrete will lean as if it were against the outside of the trench when dry. Concrete is made with one part unslacked lime and six parts rough gravel, such as would do to mend roads with; and, to save labour, the mixture should be made close to the trench; thus, put down six barrowfuls of gravel in a flat heap, and one barrowful of lime over it, then pour water on the lime, and it will soon crumble down; mix it with the

gravel, thoroughly adding as much water as will make it so soft that it will run off the spade, then throw it right and left into the trench till it comes up to within three inches of the top of it. The four walls of the tank are now finished, and must remain to dry, one month in summer and five weeks in autumn or spring; by that time the concrete will *set* as hard as a solid piece of stone. You will now say, the next job will be to throw out the soil inclosed by the concrete, and make a bottom for the tank; not so fast, however. I grant that would be the easiest way; but then you would have to get a wooden frame to form the arch over, and that frame would be expensive. My plan is to heap soil over the middle, when the trench is being made; pack it close, and round it off in the shape of the arch; it will thus make the best possible *centre*, as a bricklayer would call the wooden frame, to form the arch on; and any intelligent labourer could surely build an arch on such a centre. The arch being finished, the inclosed soil must be thrown out at both ends or gables, and three inches of concrete made over the bottom; this will dry in a week. Now, if the lime and gravel were suitable, such a tank should hold water for generations to come; but having never tried a tank that way, I cannot be positive on the point. I always plaster them over with a thin coat of cement, first notching the surface of the concrete, so that the cement will take a better hold of it. I use common Roman cement one part, and two parts rough sand; but sea sand will not answer so well as pit or river sand. The drain or pipe conveying the sewage to the tank must enter it at one of the ends and the flow or discharge pipe; if any pass out at the other end, both ends may then be closed up to the arch, with a few bricks without mortar. The soil thrown out may then be returned over the top of the tank, or levelled about, and planted over with shrubs as at Mr. Johnson's. (See page 7.)

SENILIS.

[The writer of this is one of the best practical and scientific gardeners of England.—Ed. *C. G.*]

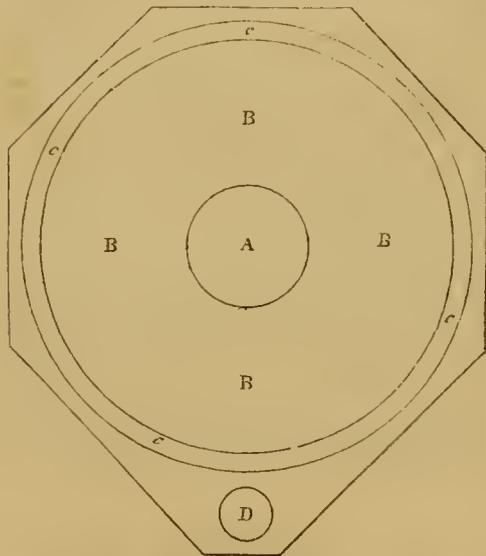
POTATOES.

THROUGH the medium of the “Cottage Gardener,” I beg to be allowed to say a few words in reference to what Mr. Saul advances in the Fourth Number, page 37; I have waved my observation, hoping some one better qualified would have taken up the matter. I planted a plot of ground with “Cups” on the 10th of April, manured with cow and pig-dung, upon a light open soil; I kept the ground clear of weeds and well forked and hoed. They looked healthier than any of my neighbours' till the 20th of July, when, in the course of two or three days, they were completely knocked down with the “disease,” as I thought; I was advised to take them up, as it was thought they would all rot. I dug about half of them on the 7th of September, and the other half on the 2nd of October. I stored them in bobbin-turnings, to keep them one from another: I looked both lots over on the 4th of November. The first lot was nearly half rotten, and the remainder were poor soft waxy things, fit for nothing. The second lot are as hard and as sound as need be; there might be about one-sixth bad. I have trenched the ground the last week, and the few potatoes I found have convinced me that they would have been all the better in the ground awhile longer.—*Pro bono publico.*

BEE-FEEDING.

In your reply to a correspondent about feeding bees, you recommend feeding them at the bottom of the hive. I find it a much better plan to do it at the top, by simply pulling out the bung at the crown of the hive, and placing it over the wooden feeding-trough—of which I send you a very rough sketch. The trough is made of wood, an inch and a half thick—any hard wood would do. I obtained the pattern from a bee-keeping friend in Nottinghamshire. But in Taylor's "Bee-keeper's Manual" a somewhat similar one is mentioned. This book, by the way, is so excellent, that it almost supersedes the necessity of any further instructions being given to a would-be bee-keeper. When the feeding-trough is placed on the top of the hive, I turn another hive over it, which covers the trough and the glass that is upon it. A glass, of the size required, may be purchased for about 7d.

REV. JOHN BYRON, *Vicar of Killingholme.*



- A. Circular aperture fitting over the hole in the crown of the hive. Through this the bees ascend into the feeding-trough.
- B. The trough cut out as deep as the wood will allow. The liquor on which the bees are fed is put in by the hole D, which is cut in a sloping direction, from the upper surface of the outer rim of the piece of wood to the bottom of the trough B.
- C. A narrow groove, sunk about one-eighth of an inch, into which a bee-glass fits, which prevents the bees escaping, or any cold air getting to them.
- D. The hole leading into the trough, as mentioned above. The top of this should either be corked up or covered over in some way; and at the bottom, where it enters the trough, two or three bits of wire should go across it, as bars, to prevent the bees from creeping up this passage.
- A piece of wood, one-eighth of an inch in thickness, pierced full of small holes, floats in the trough B, rising and falling with the liquid: through these holes the bees suck the liquor.

SHEFFIELD CELERY CULTURE.

From a former communication, you are already aware that a very great improvement is being made in the growth of celery in this neighbourhood (Sheffield); and as I have been the most successful cultivator in this neighbourhood, it perhaps may be the best plan, in describing that cultivation, to give my own method of growing it, making a few remarks as I proceed.

In the first place, "good seed is everything:" when I say good seed, I mean good seed of a good kind. I have been a cultivator of celery for fifteen years, and I have found that so much difference exists in the kind of seed you sow, that one will bear no comparison with the other, so much so, that I have put two kinds (both red) under the same treatment; the one I could only grow to 5 lbs. weight, and the other 11 lbs. 7 ozs., when divested of all the lateral shoots, &c.

Having obtained seed of the right kind, it should be sown in a seed pan, in a good compost, or good soil, slightly covering the seed over with the same; it should then be placed in a frame or greenhouse, the heat to be about 70 or 75 degrees; when the seed is up, and got into "rough leaf," as it is generally termed, the seedlings should be taken up, and those intended for the first planting should be transplanted in pots, five inches across at top, and one plant in each pot, using a compost of old "spent" manure, and a little earth of light quality. They should then be put in the frame or greenhouse again, still keeping them as warm as before for about a week; after this, air should be given them by degrees, a little more every day, to harden them ready for final planting out.

Those intended for the second planting, may be planted in a frame on a compost as before named, at a distance of four inches apart; after these have taken root they may be exposed to the air by degrees, till the glass is left altogether.

Having got the plants four or five inches high and very "stiff," they are ready for final planting in the trenches in the open air, which I recommend to be as follows:

The trench should be seven inches deep (not more) and two feet wide. I am fully aware that many persons will differ in opinion with me on this point: they will say, dig the trenches twelve inches deep and twelve inches wide. I have tried both, and experience teaches me the former is the best. I had long been of opinion that celery made more side roots than tap roots; and if such was the case, all manure placed below where the roots extended was of no use whatever. To the truth of this opinion I arrived at in the following manner this year: I dug my trench seven inches deep and fifteen inches wide, and when the celery had attained the height of twenty or twenty-four inches, I took the earth from the edges of the trench, and found the roots had got to the sides of the trench. I then made my trench wider and placed more manure, so that my trench was more than twenty-four inches wide. The result was (with the way I treated it hereafter named), I had the finest celery this locality ever produced.

Having dug the trench as before stated, it should be filled up to the top with good stable manure (in such a state that it may be cut with a spade); cover the manure with soil to the depth of one and a half inch. If the plants are in pots take them out of the pots with all the compost adhering to them; plant them twelve or fifteen inches apart. This should be done about the beginning of May; those intended for the second planting (the plants that have been transplanted in the frame), should be planted from nine to twelve inches apart. I prefer the latter. If the weather should be very dry and hot, the plants ought to be protected in the day from the scorching sun; water should be given freely after sunset, from a rose-waterpan. After the plants have got "hold," or commenced growing, they will need no protection from the sun; but take care to water pretty freely with clean water if the weather is hot and dry.

After the plants have attained the height of twelve inches they will require to be tied round with a little bast matting, or anything of a softish texture, but care must be taken not to tie them too tight, taking off all the lateral shoots as the plants grow. After having been tied up for some time, it will be necessary to untie them, and tie them again a little higher, taking off all the lateral shoots and superfluous stems before tying them again. They may then be suffered to grow till they have attained the height of from twenty to twenty-two inches. Care should be taken that they do not suffer for want of water. After having attained the above height, and are well cleared of lateral shoots, they should then be earthed about three inches high, and tied a little higher with matting (the tying is only done to prevent the wind and wet from breaking the outer stems). After having earthed them about twice, three inches at a time, I would water them once a week with the ammonia fixed in liquid manure, but still keep watering with clear water if dry weather, (I have tried ammonia fixed in liquid manure for prize gooseberries, and it has answered well). As the plants grow they may be earthed up a little at a time, taking care not to earth them over the centre of the heart, or they will be very likely to rot at the core.

In conclusion, I must remark that nearly all depends on the kind of celery you would grow. I have grown white of two or three kinds, including Seymour's, Lion's Paw, &c. I have grown red in greater varieties, but the best kind I have been able to meet with is "Nutt's Champion." I have found this superior to any I have grown for *size, flavour, and rapidity of growth*; and I am of opinion, that were it more extensively grown, it would prove itself, if not the *first* sort, second to *none*. Celery ought to be planted where it can get plenty of air; it never does well if grown near peas, beans, &c., as they have a tendency to draw it. I would also say, in using ammonia fixed in liquid manure, it must not be used too frequently, once in six or eight days is sufficient. I use it extensively for many things, and believe it might be used with great advantage if properly "fixed" and properly applied, and was it more extensively used it would be more appreciated.

Neepsend, Sheffield.

JNO. TURNER.

[We recommend the foregoing to the attention of our readers, for Mr. Turner is not only the grower of the best celery at Sheffield, but is admitted by the growers there to be an excellent judge of its merits. He is a cultivator of first-rate gooseberries, and is now busy sending out young plants. By fixing ammonia in liquid manure, we suppose Mr. Turner means, adding a little oil of vitriol (sulphuric acid) to the liquor obtained by dissolving sheep's or deer's dung in water.—ED. C. G.]

SELECT LIST OF HARDY ANNUALS.

Flowers that may be sown in the open ground from February to May.

- Adonis Autumnalis—Autumn-flowered pheasant's-eye; 18 in. high, crimson.
- Bartonia Aurea—Golden bartonia; 2 to 3 ft., orange.
- Campanula Lorei—Lorey's bell-flower; 1 ft., white and blue.
- Silene Lobelii—Lobel's catchfly; 1 ft., pink.
- Calendula Hybrida—Cape marigold; 9 in., brown and white.

- Clarkia Pulchella—Pretty Clarkia; 1 ft., rose pink.
 - " " alba " white, 1 ft.
 - " Elegans Rosea—Elegant rosy Clarkia; 2 ft., light pink.
 - Collinsia Bicolor—Two-coloured collinsia; 18 in., white and lilac.
 - Convolvulus Major—Greater bindweed; creeper; various colours.
 - " Minor—Lesser ditto; trailer.
 - Delphinium Ajacis Flore Pleno—Dwarf-rocket larkspur; 1 ft., various.
 - " Consolida—Branching ditto; 2 ft., blue.
 - Erysimum Peroffskianum—Peroffsky's hedge-mustard; 18 in., yellow.
 - Eschscholtzia Californica—Californian eschscholtzia; 18 in., orange.
 - " Crocea—Golden ditto; lemon and orange.
 - Eutocia Viscida—Clammy eutocia; 18 in., bright blue.
 - " Wrangliana—Wrangle's eutocia; 1 ft., pale blue.
 - Godetia Rubicunda—Ruddy godetia; 18 in., light rose.
 - " Venosa—Veiny ditto; light rose, white eye.
 - Helichrysum Macranthum—Large-flowered everlasting; yellow, 2 ft.
 - Helianthus Annus—Annual sunflower; 5 ft., yellow.
 - Iberis Coronaria—Crowned candy-tuft; white, 1 ft.
 - " Umbellata—Umbelled ditto; purple, 1 ft.
 - Kaulfussia Ameliioides—Amellus-like kaulfussia; 6 in., dark blue.
 - Lathyrus Odoratus—Sweet-pea; various-coloured; climbing.
 - Leptosiphon Androsaceus—*Not Englished*; rosy lilac, 6 in.
 - " Densiflora—Ditto, ditto; 1 ft.
 - Lupinus Nanus—Dwarf lupine.
 - " Luteus—Yellow ditto; 2 ft.
 - " Roseus—Rose ditto; 2 ft.
 - Nemophila Insignis—Showy Nemophila; 1 ft., sky-blue.
 - " Atomaria—Black spotted ditto; white and black, 1 ft.
 - Malope Grandiflora—Great-flowered mallow; dark crimson, 2 to 3 ft.
 - Oenothera Rosea Alba—Rosy-white evening primrose; 1 ft.
 - Mathiola Annua—Stock, ten weeks.
 - " " scarlet; 1 ft.
 - " " white; ditto.
 - " " purple; ditto.
 - " " German; various.
 - Papaver Rhoeas—Common poppy; 1 to 2 ft., various colours.
- Very select Annuals that require to be sown on a gentle hotbed in March, and transplanted into the open border in May or June.*
- Anagallis Grandiflorus—Large-flowered anagallis; blue, 1 ft.
 - Aster Sinensis—Chinese star-flower; 1 to 2 ft., various colours.
 - Brachycome Iberidifolia—Candy-tuft-leaved brachycome; blue, 1 to 2 ft.
 - " Alba—White ditto, ditto, ditto.
 - Calendrinia Umbellata—Umbelled Calendrinia; rosy purple; 1 ft.
 - " Discolor—Discoloured ditto; dark purple, 1 ft.
 - Chrysanthemum Tricolor—Three-coloured chrysanthemum; 2 ft.

- Clintonia Elegans—Elegant Clintonia; blue, 6 in.
 „ Pulchella—Pretty ditto; blue and yellow, 8 in. (requires particular attention when in the seed-leaf.)
 Cochlearia Acaulis—Stemless scurvy-grass; pale blue, 2 in.
 Coreopsis Tinctoria—Dyer's coreopsis; yellow and brown, 2 ft.
 „ Pieta—Painted ditto; yellow, 1 to 2 ft.
 „ Atrosanguinea; dark bloody ditto; 2 to 3 ft.
 Dianthus Chinensis—Indian pink; various colours, 1 ft.
 Gilia Tenuifolia—Slender-leaved gilia; 1 to 2 ft., rose-colour.
 „ Tricolor—Three-coloured gilia; 1 to 2 ft.
 Lobelia Heterophylla—Various-leaved lobelia; beautiful blue, 1 ft.
 Lupinus Cruikshankii—Cruikshank's lupine; blue and white, 3 ft., branching.
 „ Marshallii—Marshall's ditto; various shades of blue, white, and primrose, 2 ft.
 Martynia Fragrans—Fragrant martynia; bluish-spotted, 1 to 2 ft.
 Mesembryanthemum Tricolor—Tricoloured fig-marigold; 4 in.
 „ Glabrum—Yellow ditto, 4 in.
 Nolana Atriplicifolia—Spinach-leaved nolana; blue, with white centre, 8 in.
 Phlox Drummondii—Drummond's phlox; crimson and rose, 1 ft.
 Portulaca Splendens—Splendid portulaca; rosy-purple, 9 in.
 „ Thellusonii—Thelluson's ditto; orange crimson, 9 in.
 Rhodanthe Manglesii—Mangles's Rhodanthe; bright pink; 1 ft.
 Schizanthus Retusus—Depressed schizanthus; deep pink and yellow, 2 ft.
 „ Priestii—Priest's ditto; white, 1 ft.
 „ Smithii—Smith's ditto; lilac and white, 1 to 2 ft.
 Senecio Elegans—Elegant Senecio; purple, 2 ft.
 Sphenoglype Speciosa—Showy sphenogyne; buff yellow, 1 ft.
 Tropaeolum Peregrinum—Yellow Indian cress; climbing.
 Viscaria Oculata—Eyed viscaria; pink, with dark eye, 18 in.
 Xeranthemum Lucidum—Shining everlasting; yellow, 3 ft.
 Zinnia Elegans—Elegant zinnia; 18 in., various shades of crimson, scarlet, and rose.

OXIDE OF IRON IN SOIL FOR ROSES.

ON perusing No. 2 of THE COTTAGE GARDENER, a highly desirable periodical, we find at page 14, "If there is the least appearance of much oxide of iron in it (loam), he must avoid it as the plague." Surely Mr. Appleby has no acquaintance with the soil of a great part of this county (Gloucester), where vegetation thrives in a soil which, from the large quantities of oxide of iron contained in it, is literally in many places a bright red.

Not only do our roses exhibit a healthiness rarely surpassed, but all other plants grown in the neighbourhood, annual, perennial, bulbous, &c., grow equal to any we have ever seen.

HENRY CURTIS AND Co.,

West of England Roseries, Moorend, near Bristol.

CULTURE OF WATER-CRESSES.

OBSERVING you have given a detailed account to grow water-cresses, I give you a very simple plan, which I have practised for several years. Choose a moist situation, if near a pond, or the pump, the better, with a light rich soil; procure either seeds, or plants, or cuttings, in the spring; if plants, set them about six inches distant; they will soon grow, and the produce will amply repay the trouble; keeping them moderately moist, they will continue many years, growing good crops.

G. HOWARD, Florist, *Springfield, Essex.*

SCARLET-RUNNER BEANS.

A GOOD method of growing scarlet-runner beans, is to plant eight or nine seeds in a circle of eighteen inches diameter, and put a good larch pole, nine or ten feet long, in the centre, and train the beans up to it. They produce more fruit, shade less, and require less ground, and are very ornamental.

Where the occupiers of gardens have the means, I would strongly recommend this method, having proved it myself.

JOSEPH BALE, *Loughton Farms.*

GOOSEBERRY PLANTING.

Now is a good time for planting, and I am now sending out the following selection: *Red*—London, Companion, and Slaughterman. *Yellow*—Leader, Catherine, and Drill. *Green*—Thumper, Queen Victoria, and General. *White*—Freedom, Queen of Trumps, and Lady Stanley. If planted as hereafter named, I feel assured they will "surprise the natives" of the south of England: they are all able to bear fruit next season, with the exception of Freedom; it is the best I have at present, but the sort is there: plant them in the natural ground, about three feet six inches apart; take out the soil, where they are to be planted, three inches deep; make the bottom of the trench quite level with the back of the spade, then put down a stake, or stick, say two feet long, about three-quarters of an inch thick; do not leave the stake above six or seven inches above the level of the trench; tie the "hole," or "stem," of the tree to the stake with a little matting (this is done to prevent the wind blowing them about); when you have done this, take all the roots and straighten them, placing a little soil upon them as you proceed; let the roots be placed as uniformly as you can round the trench, taking care one root does not lie over another; then cover the root one and a half inch deep, including the little you have put on in laying the root straight; then lay over this a little spent manure, about one inch thick, cover this with soil, and they will do without any further trouble till spring, and before that time I shall have sent you further information. Do not be afraid of making the trench a little wider than the roots extend, as it gives you a little room to extend the roots. I think I have said what I need say, at present. I have oft wished they could get some good sorts in the South, as my impression is they could be grown a great deal larger than we can do. London has been grown this year, 31 dwts. 19 grs.; Thumper, above 30 dwts.; Catherine, 30 dwts. 15 grs.; Freedom, 28 dwts. odd. We weigh them 24 grains to a pennyweight.

JOHN TURNER, *Neepsend, Sheffield.*

POTATO DISEASE.

I HAVE been very much pleased with a letter on this subject, by one of your contributors, in the GARDENER'S ALMANACK for 1849. It is cheering to read such a letter, after such a mass of nonsense has been published on so plain a subject. Mr. Errington takes a sensible view of the whole case, and points out the cause of all the mischief. For more than twenty years I have, by writing in different publications, and travelling hundreds of miles amongst the growers of the potato, tried to convince them of the folly of pursuing their present mode of cultivation, and keeping their seed, and that nothing but a total deterioration could be the result. If your readers will refer to Paxton's *Horticultural Register*, the Cottage magazine and newspaper, they will find my letters, giving an account of the usual plans adopted with this valuable root, and at the same time giving them my own plans. Fermentation is the grand destroyer. Why, the seed is never at rest, from the time it comes out of the ground until the time it goes in again; the seed is constantly expending the strength which ought to go to produce the next year's crop. Treat any other tuber in the same way, and the same results will follow. I have never yet had a diseased potato from my seed; which I always make a point of saving, and exchanging, every three or four years, with a friend who adopts the same system. I have examined a great number of tubers with the microscope, and I find it the most delicately-constructed tuber I ever saw, and the soonest liable to injury, if not properly treated. Independently of the fermentation constantly going on, the potato has been too much forced in the soil, by a great surplus of manure. It is impossible we can grow from twenty-five to sixty tons weight per statute acre, and keep it in health. Growers seem to think they can make the potato grow without taking any care of the seed, or studying the nature of its cultivation.

In the spring of 1846, I published a full account of the disease in the *Economist* newspaper, but it contained little more than what I had written and published many years before: few people in England have, I think, paid much attention to the subject until the last three or four years. There is a remedy to be found, if cultivators will be at the trouble to adopt it; but if they are determined to go on as they have done, the disease will certainly progress.

G. J. DALE, *Longsight, near Manchester.*

ANOTHER correspondent, the Rev. Walter Sheppard, Hermitage, Newbury, says:—"I hope ere long to give you a few facts with regard to the potato-disease, and a remedy which has proved effectual as a preventive. You are quite right as regards autumn or winter planting. I have pursued it with success for three years, and without the application of manure, planting after cabbage, for which I manure highly. My potatoes are *American Whites*, with a very thin skin; my soil a *light sand*. Pounded unpurified sulphate of magnesia, the residuum of sea-salt, or alum works, applied to the ridges in spring is the remedy. I will get the particulars, and write to you."

PULLING UP POTATO STEMS.

As all information is just now valuable about the cultivation of potatoes, when any success has been experienced in their growth, and disease has been

warded off, I shall not, perhaps, be wasting your time by a few words about mine, since I have had good crop of them, while those of my neighbours have failed.

Mine were grown in the soil I have imperfectly endeavoured to describe. Some were planted in December last, some about February. Disease appeared in the tops of both crops about August, when I pulled up the haulm clean away. The potatoes I left in the ground, and I had good crops in size, though not very large in quantity. Scarcely any were diseased when I took up the greater part of the potatoes in November, and the sound ones were more mealy than when I pulled the haulm off in August. They had improved, and therefore had suffered no detriment from that operation. The common opinion in my neighbourhood in August was, that the sooner the potatoes were taken up the better; that the longer they remained in the ground, the more diseased they would become. I have proved the contrary. Those taken up by my friends were scarcely eatable all the autumn, while mine improved in the ground: so did those of the person who I induced to try the same plan as I did. My plan proceeded, I may say, equally well with both my autumn and spring-sown crops. I saw scarcely any difference in the produce of the two.

I had a few rows of potatoes, which were the best I ever ate; they were as mealy and dry as flower. What I did was this. Having treated them as above described, I took up, as they were required for daily consumption, every other row, and planted in the place of them some brocoli. This was in August. Whether the digging up one row acted as a drain to the other, and the brocoli further drained them, by sucking up more moisture, which I imagine to be the case, or how it was, I know not; but, as I said before, I never ate any potatoes so good in my life, as those left in the alternate rows, and I shall certainly adopt the same plan another year. I left them in the ground as long as they lasted, and dug them up every day as they were wanted; and that plan I am sure added to their goodness, and should be generally adopted by persons fond of good potatoes. I have a crop still in the ground, which I dig for daily use.

If I had a wet clay soil, I think I should plant a row of cabbages and a row of potatoes alternately, at two or three feet apart, in the first instance, instead of waiting to take up a row of potatoes to substitute the cabbages in their place. It would be worth the experiment.

REV. P. W.

ROSE-PRUNING.

I now write (Dec. 8) with a large vase of garden-flowers before me, composed of six different sorts of chrysanthemums, anemones, laurustinuses, and roses, of which latter I am, like all florists, a great admirer: and on reading over your last week's Number, I particularly noticed the mode of pruning it you recommended, which I think good, but capable of improvement; and venture to suggest a mode which, after some years of experience, I have thought best. You very correctly say, let the French and climbing-roses stand over until spring, which I have found advisable for *all*. Some years ago I pruned close in every sort in my garden. (without regard to hardy or tenderness,) in October and November. The coming winter proved a very severe one, and almost, without exception, every shoot was cut down by the frost below the flowering bud, and I had scarcely a rose in my garden. This was also the case with my jessamines.

Since that time I have adopted a different method, which I find to answer so well, that I am induced to thus submit it to your readers. In the autumn, both with regard to the rising sap during the winter, as well as a suitable degree of neatness in my rose-bushes (and jessamines in particular), I prune off all straggling, useless shoots, as well as the ends of all those intended for next year's flowers, to within two or three buds left for that purpose; and as soon as the spring shews a settled appearance of safe weather, I then go carefully over the whole for a final pruning, cutting-in some to the very lowest bud, and leaving others with three or four buds, which buds, having become more turgid from the rising of sap during the winter, flower sooner than the others; and by this means my rose-bushes, as well as pillars and climbers, keep longer in bloom. My conviction is so strong that the sap of almost all fruit-trees, as well as others, never wholly slumber or sleep, that I certainly think an autumn better than a spring-pruning for most sorts that are sufficiently hardy to bear, without injury, a severe frost; for this obvious reason, that all the fruit-bearing buds become more bold, and readier to break forth when genial weather arrives; whereas, if useless shoots are left to imbibe the rising sap between autumn and spring, (which, by the universal law of nature, always pushes to the extremity of every healthy shoot,) to the impoverishment of all the lower buds, when the knife takes away the upper part of the shoot, it leaves the rest poor indeed. Q.

INFLUENCE OF WET SOIL ON POTATOES.

THINKING that every atom of experience respecting the potato may be useful, I beg to inform you that I planted some second early kidney potatoes this spring in my garden, which seemed to come on favourably for a considerable time, but suddenly the disease seized them, and they rapidly decayed. On taking them up, I observed that the roots which were next to the hedge, and not so much exposed to the sun, air, and wet, were very good, prolific, and free from disease, producing fine ripe fruit; and the roots that were partially screened by several raspberry clumps yielded the same healthy fruit. Again, I have found that potatoes bought in the market on the Saturday are good at first, and become bad by keeping five or six days; proving, in my opinion, in both cases, that the cause is in the atmosphere.

I also planted in the spring a few rows of a very fine mealy potato, round, and blue and white in colour. I am at a loss for its name.* I forbid the use of any more after I saw the first dish come to the table, keeping every one for seed in a cold store-room, until I saw your recommendation to bury them in sand or soil, in layers, which I have done, and should plant them now, but I fear the weather will not permit me, having such continued wet weather here.

JOSH. BALL.

Loughton Farms, Staffordshire.

THE BEE.

[We have been obligingly permitted by the Rev. C. A. A. Lloyd to publish portions of his Lecture on this insect, delivered before the Natural History Society of Shropshire, and we this day commence the subject.]

WHEN we take up any old book upon the subject of bees, we must see at once the very little that was

understood concerning the natural history of this most industrious of all of God's creatures.

This ignorance is the more extraordinary when we consider how many scientific persons have written about the honey-bee, and that the attention of mankind has been drawn to the subject by bees submitting themselves to be lived, and placed in our gardens under our immediate inspection. The first writer who speaks of the natural history of the bee is the famous historian, Xenophon. He states that there is a monarch in each hive. Aristomachus, a native of Asia Minor, spent sixty years in the study of bees; and Philissus of Thrace passed his life in the woods for the same purpose. Melissus, king of Crete, is said to have invented and taught the use of bee-hives. Aristotle and Pliny devoted some of their thoughts and writings to enlighten mankind on the natural history of the bee. The great Mantuan poet embodied in his Fourth Georgic the knowledge of bees in his time; but it would be as absurd to learn such knowledge of bees from his poems, as it would be to learn political economy (as many do) from "Goldsmith's Deserted Village."

Dr. Charles Butler, who lived in the time of Charles I., was the first person who began to dispel past ignorance on this subject. He first taught that the sovereign of the hive is a female: that bees prior to swarming send out scouts to find a new habitation: that in each journey from the hives, bees attend to only one species of flowers in collecting farina: that the farina is collected only to feed the larvæ (grubs), and that it is not wax, for that when bees make most wax they gather no farina: that old stalls which are full of combs carry more of this matter than swarms, and yet have no more wax at the end of the year than at the beginning: that real wax is to be found in white scales at the bottom of the hive, the scales falling from the bees in working the combs, and that when melted together, no one could doubt about its being wax. He also taught that the *Lycoperdon bovista* would stupify bees without destroying them.

John Thorley, who lived in the time of Queen Ann, made a further discovery as to wax, which he relates in the following words:—"Viewing a hive of bees busy at labour, I observed one bee among the rest of an unusual appearance, upon which I seized her directly: and with a very sensible pleasure I found within the plait of this bee no less than six pieces of solid wax, perfectly transparent, three upon one side and three upon the other, appearing to the eye equal in bulk and gravity." Thorley introduced side-hives, and the manner of taking honey described in the "Conservative Bee-keeper." He held that bees would die if they had only access to farina, and that they do not eat it under any circumstances.

It is curious to remark, that about 200 years after the discovery of Butler, and 100 years after Thorley's, that an author, in the year 1821, (Arthur Aikin) should be so ignorant, or so obstinate, as to state in his book, that "wax is made by bees from the dust within the anther of flowers," and "that larvæ are fed with the purest honey;" when Thorley had proved that wax is concreted under the scales of the working bees, and Butler that the farina is only used to feed larvæ. Buffon was in the same mistake to his death.

Joseph Warder, a physician, in the early part of last century, taught that drones were males, and the workers females. He recommended ventilating hives when you are desirous that bees should not swarm. The following are the names of other persons who studied the subject last century:—Reaumer, Riem,

* Perhaps the Forty-fold.—Ed. C. G.

Schirach, Hunter, Knight, and Bonner, but, with two exceptions, their investigations, were not attended with any great success, though they were strictly men of science. The two first examined the ovary of the queen with microscopic glasses, and found an immense number of eggs. Schirach discovered that bees had the power to convert a young grub of a working-bee kind into a queen. Mr. Debray, of Cambridge, lays claim to this discovery in the "Philosophical Transactions of 1777." Reim discovered prolific workers. Hunter established the fact that bees consume more honey in frosty than in open weather. Arthur Dobbs and Knight, in the work just mentioned, claim as discoveries, what Butler had established many years before. The same may be said of Bonner.

Having now summed up all that was done by a host of learned men in investigating the natural history of the bee, amounting in the whole to a few facts, I now come to speak of Huber, a native of Geneva, who has done more to elucidate our subject than all his great predecessors had done before him.

If Butler first pointed out that wax and farina were quite distinct substances, and Thorley found wax under the scales of working bees, it was left to Huber to give a full explanation. If Schirach and Debray discovered that bees have the power to make a working-bee maggot into a queen, they thought that it was the only way the God of Nature had provided for the formation of a queen: it was left to Huber to render the experiment complete. If Riem discovered fertile workers, Huber shewed the cause of them, namely, their having been nursed near royal cells, and having been fed upon royal jelly. If naturalists knew that drones were destroyed, or driven away in the autumn, it was Huber who discovered that they were stung to death by the working-bees at the bottom of the hive, and there only.

Francis Huber was born at Geneva, on the 2nd of July, 1750, and inherited a taste for natural history from his father. By the writings of Bonner, and by an intimacy with him, his attention was turned to the subject of bees. Most unfortunately, he lost his sight, but had an assistant in Francis Berens, quite qualified for the task of carrying into effect the suggestions of his employer; and in Peter Huber, his son, he had a coadjutor in every way worthy of such a father, and who afterwards became the discoverer of the natural history of the ant. The elder Huber had married Maria Aimee Lullen, the daughter of a Swiss magistrate, who warmly entered into all his views, and assisted in his experiments, as did also his daughter Jurine, by her skill in anatomy: she has for ever set at rest all disputes as to the sex of the working bee. She died very young, or she would probably have added more facts to our knowledge of bees.

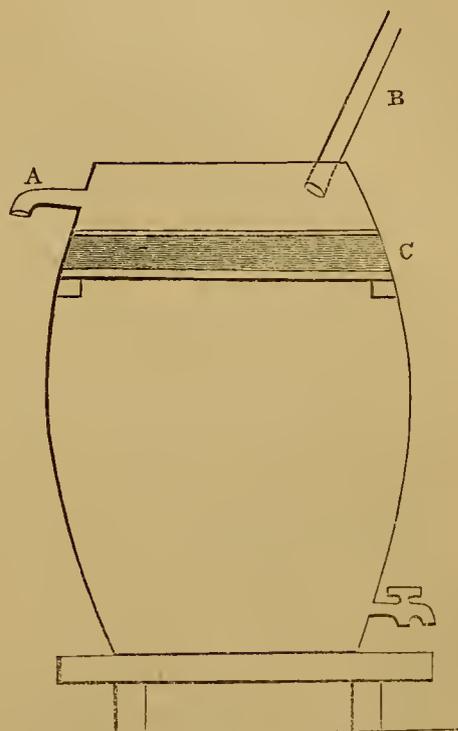
The discoveries of Huber are most splendid, and his little work ought to be in the hands of every lover of natural history. Huber lived to a good old age, and died on the 22nd day of December, 1831, aged eighty-one; but his name will exist for ever in the minds of all who love to study the works of the great Creator. After all Huber's discoveries, there are still some facts which want elucidation. The age to which bees live is still unknown; and whether the honey which bees collect from flowers undergoes change in the honey-bag of the bee, or is deposited in the exact state in which it is found, is also involved in mystery.

(To be continued.)

RAIN-WATER.*

BY CUTHBERT W. JOHNSON, ESQ., F.R.S., ETC.

If Floretta requires the rain-water merely for the purpose of washing, the requisite degree of purity will be readily attainable by allowing the water to pass through a stratum of sand, placed near the top of the water-cask, according to the following plan:

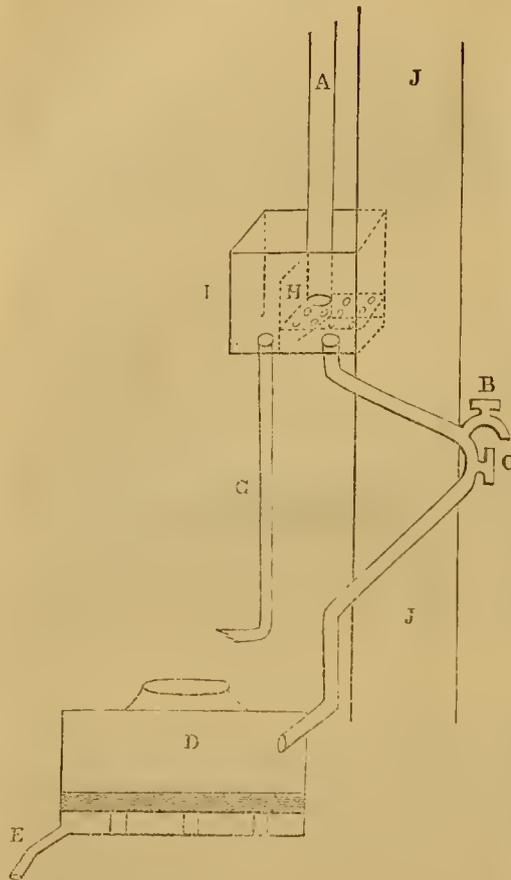


A. Overflow-pipe.
B. Roof-pipe.
C. Filter.

In arranging this, it will be well to have the false bottom, B, made of wood, and pierced with holes; on the top of this put about an inch deep of small pebbles or sand, of such a size that it cannot pass through the holes. Upon these pebbles lay about two inches of fine white sand; this will remove all the soot and most of the other mechanically suspended matters.

If Floretta wishes for a greater degree of purity in the rain-water, some little care is needed to reject the first portions of the rain-water which flow from the roof after any little interval of dry weather. This I have accomplished by the little apparatus (which is regulated *in-doors*) represented in the following outline:—

* This has been written, at our request, in answer to a correspondent, signing her query "Floretta;" but we thought the subject deserved general attention.—Ed. C. G.



- A. Pipe from roof.
 B. Test-cock.
 C. Cock regulating the passage of the water in the strainer.
 D. Strainer.
 E. Pipe which conveys the water, after passing through the strainer, to the store-tank.
 J. Wall of the house.

By this arrangement, the rain-water which falls on the roof is received into the wooden box, F (about nine inches cube lined with lead), and escapes over a ledge, H, down the water-pipe, G, into a drain; and this is allowed to thus run away, until by drawing off a glassful at the test-cock, B, (which is inside the house), we find the water is of sufficient purity. Till this is ascertained, the cock, C, is kept closed. As soon as the water is sufficiently bright and tasteless, the cock, C, is opened, and the water then passes into the strainer, D, through a stratum of white sand, resting on a false bottom, in the way I have already described, and then by the pipe, E, into a stone tank. Some little period will elapse after any interval of dry weather before the rain-water escapes from the roof in a state fit for drinking. I found, at Lee, in Kent, that at least two hours of steady rain were required, on a slated roof, before it became bright: at first it was very sooty, looked as if soap was mixed with it, and tasted very nauseous. At Waldronfield, near Croydon, I find it escapes from the roof (which is of slate), sufficiently pure, in less than half that time. I may add, that the little metal strainer in the box, F, is added to prevent the leaves, feathers, large beetles, &c., finding their way into the sand-filter.

SCRAPS FROM CORRESPONDENTS.

SCHOOL GARDENS were established about a century ago by the Quakers, at their school at Ackworth, in Yorkshire, and the plan is carried on to the present time. Each boy has a certain portion of seed allotted to him for his ground, the cultivation of which is found highly beneficial to his health, and interesting to the youthful mind. A similar plan has been adopted for ages at the convents, for flower-growing, and continues to the present time. The friends of the pupils are allowed to send them new seeds, &c.—*M. SAUL, Garstang.*

EARTHING-UP CELERY.—In No. 9 of *THE COTTAGE GARDENER* I see a statement relative to the management of celery, which I also am able to recommend. For the last two years we have tried the system of earthing-up celery at twice, which answers far better than the old practice. We have at the present time some very good celery, weighing on an average from 5 to 7 lb. per stick, quite free from decay. We have no doubt, had we adopted the old plan of earthing-up when the heart of the plants were two or three inches high, and so on progressively until the plants had done growing, we should not have had it so good and fine as we have at the present time; for by earthing-up celery at so many different times, it is almost next to an impossibility to keep bits of soil out of the heart of the plants, and consequently, in wet seasons, like the present has been, by the time it is wanted for the table many of the sticks are decaying, if not altogether unfit for use.—*T. ELLIOT, Gardener to R. Baxter, Esq., Doncaster.*

SILKWORMS.—Having noticed that you intend giving a series of Essays on the Management of Bees, has induced me to think that a few remarks upon that interesting insect, the silkworm, whose labours are equally wonderful and valuable, would not be uninteresting to your readers. The mulberry leaves are considered to be the mine worked by the silkworm; and the white mulberry plant is preferred, as coming earlier in leaf than the black, and enabling the caterpillars to produce much finer silk. It would require some capital to make the cultivation of silk a matter of extensive speculation; but now that the spinning-wheel is banished from our homes, why should not our young spinsters be engaged in the cultivation of silk, an article indispensable in the fabrication of articles for female attire? In our more refined age, too, the husband may equally admire, in the tasteful adornment of his bride, her patience and industry, as in former days her more substantial contributions of home-spun linen. It was long considered that the white mulberry-tree, being a native of Persia, could not be reared with success in England, but it might have been remembered that the walnut is from the same country.

The growing interest for this valuable branch of agriculture will remove all prejudice, as it is now proved, not only that the white mulberry-plants may easily be propagated in this country, but that the silk produced is equal in quality and weight to any silk imported. In each garden a small piece of ground should be appropriated to the cultivation of this valuable plant, and we have even seen small plants in pots, and the silk-worm, after having arrived at maturity, placed on it, where it will spin its cocoon, producing a novel and interesting appearance to see the silk-ball enveloped in its leaves.—*Clara Chiddin-fold.*

NEW GREENHOUSE AND HARDY PLANTS WORTH CULTIVATING.

GUMMY CHIRON (*Chironia glutinosa*).—This greenhouse shrub, of bushy habit, was found among some rubbish thrown aside at the Hull Botanic Garden. It is believed to be a native of Australia. Its blossoms are very numerous, purplish red, and continuing for several months. It is easily propagated by cuttings, planted in sand, and a gentle bottom-heat given them. The rooted plants require to be grown in a soil of equal parts loam, peat, and leaf-mould; to be kept gently moist during the growing season, but rather dry in winter. It likes plenty of air and light.—*Paxton's Magazine*.

MENZIES' CINQUEFOIL (*Potentilla Menziesii*).—This is a garden variety lately raised by Mr. Menzies, gardener to H. Edwards, Esq., of Hope Hall, near Halifax. It is a hardy border-plant, grows bushy, about three feet high, and bears many large rich crimson flowers. It is best propagated by dividing the roots in autumn, but this may be done in early spring. The soil should be a moderately rich loam, well drained.—*Paxton's Magazine*.

DOUGLAS'S ASCLEPIAS (*Asclepias Douglasii*) was found on the west side of the Rocky Mountains of North America, by Mr. Burke, in 1846, where it had been previously discovered by Mr. Douglas. It is a handsome hardy herbaceous border-plant, growing to the height of a foot and a half. Flowers white and red, continuing a long time.—(*Botanical Magazine*, tab. 4413.) Like others of the hardy herbaceous Asclepiases, it will grow well in any very light soil, but it is benefited by the addition of a little peat. It is readily propagated by seed, to be sown early in the spring, or by dividing the roots late in the autumn.

GREY'S SWAINSONA (*Swainsona Greyana*).—This is probably a half-hardy shrubby plant, but certainly would thrive in our borders during the summer, and would require no more than the shelter of a cool greenhouse during the winter. It is a native of Port Adelaide, in South Australia. Its flowers are shaped like those of the sweet-pea, and are purple and white, blooming from June to August. It is the most beautiful of this elegant family of plants.—(*Botanical Magazine*, tab. 4416.) The soil best suited to it is a mixture of two parts sandy loam and one part peat. It may be propagated by seed sown in the spring, or by cuttings of the young shoots in autumn.

HINTS FROM OUR CONTEMPORARIES.

THE KITCHEN-GARDEN AT TRENTHAM HALL.—Trentham Hall is the seat of the Marquis of Stafford, near Newcastle-under-Lyne. Its gardens are under the care of Mr. Fleming, one of the best of modern horticulturists. The kitchen-garden occupies five acres, and is thus noticed by a recent visitor:—"Although in every sense of the word a kitchen-garden, it may nevertheless be traversed by ladies in any weather—so perfectly hard and impervious are the walks. The alleys inside the borders, from the principal walks, are all edged and gravelled, which adds much to the general appearance, and enables the workman to pass to and fro in a cleanly manner; scrapers are also placed at every opening. These things, however trifling they may appear, are perfectly necessary to good gardening. One of the many expedients which Mr. Fleming has adopted with the view of economising

room, and which has an excellent effect, is that of throwing an arched iron trellis over the principal walks, upon which are trained all the best kinds of pears, which, when we saw them, were literally loaded with fruit. Independently of the saving of room, these arched walks afford a most delightful retreat in hot and scorching sunshine. Some of the walks that are not arched over, have the pears in the borders trained to bell-shaped iron trellises, which look very handsome. Many of the largest and best kinds of pears require some such support; for when planted out simply as standards, a heavy gale of wind frequently shakes off the fruit long before it is ripe for gathering. The best sorts of apples are also trained to trellises in the form of a cylinder, four feet wide and four feet high; and such is the nature of the soil at Trentham, that these trees scarcely ever produced half a crop until they were taken up bodily, and the whole of the borders concreted; and the few fruit that were produced previously were generally hard and gritty, and destitute of flavour: now such is not the case; every tree, whether apple, pear, or gooseberry, is as much under control at Trentham as a pine apple or a pumpkin; and were such not the case, vexation, disappointment, and labour wasted, would be the result. The wetness of the subsoil, and the proverbial moisture of the locality, have compelled Mr. Fleming to adopt every means that could possibly be suggested to keep all the trees of a fruit-bearing kind as limited in their growth as possible, consistently with the production of a crop. They never suffer from drought. As soon as the peaches and apricots against the walls have their fruit gathered, they immediately have their roots examined and shortened back: this checks their growth and facilitates the ripening of the wood. Were this not done every autumn, they would continue growing until the frost checked them; the latter generally destroyed half the young wood. The great enemy to contend with in gardening here, as has been previously stated, is the superabundance of moisture, both in the atmosphere and in the soil: to cure the latter, a main drain is placed under every walk and alley; this receives the innumerable tributaries which intersect the garden in all directions.

"The gooseberry-bushes, as well as the red, white, and black currants, are trained as standards—some having stems four feet high, with round bushy heads. This allows the sun and air to get to the soil, and also much more readily to the fruit—by which means its flavour is much improved; besides, it keeps the fruit from being splashed with dirt and sand in heavy rains. No digging is ever suffered on the fruit-tree border, or among raspberries or strawberries; the soil is merely loosened with a three-pronged fork—but then this is repeated frequently, to admit of free atmospheric action. Raspberries and strawberries are all dressed in winter with a decomposed compost of rotten dung, tree-leaves, &c., which improves the size and quality of the fruit very much. Some years ago, the asparagus in this garden was never fit for use. It was better calculated for flower-stakes than for the table. Mr. Fleming has recourse to salt, which he applies in spring, when the beds are dressed. The quantity used is two pounds to the square yard; and also, during the season of growth, salt is used in a diluted liquid state: this has produced such a difference, both in growth and quality, that the asparagus is now all that could be desired. Mr. Fleming is a great advocate for the use of salt, which he applies all over the vegetable ground in fine weather, when the soil will admit of being trod on."—*Gardener's Chron.*

GARDEN ALLOTMENTS.—It was announced at a meeting of the Durham Sanitary Association the other day, that the Dean and Chapter of Durham had given directions to their agent, Mr. Rowlandson, to provide garden allotments, at the earliest possible period, for the Members of the Durham Workmen's Association.

CHINESE GARDENING.—We are informed by a very intelligent captain of the Royal Navy, among other anecdotes illustrative of the sedulous and ever-watchful care of the Chinese to save every particle of fertilizing matter, that our consul at Ningpo found himself extremely incommoded by the smells from two jars in the vicinity of the residence assigned to him by the mandarin of the district. Upon expressing his desire to have them removed, he found that it could only be done at the expense of many dollars, for that certain parties, through several generations, had purchased the right of having all the house-slops, &c., emptied into those jars, for use upon their grounds.

TO CORRESPONDENTS.

AUTUMN-PLANTED POTATOES (*Clericus Devonensis*).—No wonder that the stems of your ash-leaved kidneys, planted in your southern district so early as the 19th of October, have appeared above ground; the 19th of November would have been a better planting time. You had better leave them alone, the frosts will cut them down, and fresh stems will appear in the spring.

PEARS ON QUINCE-STOCKS (*Ibid*).—You are quite right in discrediting those who assert that these are not suited for Devonshire. It is one of the wet counties, and the quince, we know, delights in moisture. Mr. Rivers, of Sawbridgeworth, we believe, delivers them free from carriage in London.

BREES (*T. Marcer*).—We believe that Mr. Neighbour, Holborn, London, will procure you a swarm.

MELON CULTURE (*E. Pitt, Birmingham*).—We shall treat of melon culture in our weekly calendar. Mills "On the Culture of the Cucumber and Melon" will give you full information.

SHALLOW SOIL ON A GRAVELLY SUBSOIL (*Rev. P. W.*).—Although your subsoil is a gravel, we recommended you to trench it two or three feet deep. The staple of the soil resting upon it would be greatly improved by adding chalk, as you propose; but a still better application for the purpose would be a mixture, in equal parts, of clay and chalk. A heavy coating of mere brick earth, which probably may be found in your neighbourhood, would be found beneficial. After any of these additions, you would find your manures not so soon exhausted. Thanks for your communication about potatoes.

DISSOLVED BONES (*W. Parry*).—The sulphuric acid is only sufficient to take part of the lime from the phosphate. The phosphoric acid set free, combines with the remaining phosphate of lime, and renders it a super-phosphate. Your communication is too theoretical for our cottage readers.

CLERICUS.—Mr. Barnes informs us that he inadvertently wrote 16½ yards square, at page 103, instead of 16½ feet square. A pole, or rod, Mr. Barnes adds, is termed, in the west of England, a land yard.

ORANGE AND LEMON-TREES (*A. Harvey*).—Young orange-trees like yours, in a room without artificial heat, should be allowed to rest till the return of warm weather in spring. Your plants, being so small, must not be allowed to go without a little water now and then, just sufficient to keep the soil from becoming too dry and powdery. Old plants in large pots, under similar circumstances, would be better without any water for the next two months. Cut off a few inches from the points of all the shoots, and few leaves will then be left, and the heads of your trees will become more bushy next season. Keep frost and frosty air from them as much as possible, but in mild weather open the windows daily.

COST OF A TWO-LIGHT FRAME (*L. B.*).—The woodwork of a two-light frame may be purchased ready-made for 26s.; the glazing can be done very well for less than 20s. more.

NAMES OF ROSES (*Vertumnus*).—Thanks for the corrections.

THE PINE-STOVE (*X*).—We are sorry that we cannot oblige you. If we admit the pine-stove, how can we refuse similar applications for other hot-house departments?

AUTUMN-PLANTED POTATOES (*D. V. Bronpton*).—This mode of planting answers equally well for the late as for the early varieties. Either keep your seed-potatoes stored in alternate layers, with earth, or plant them at once during dry weather.

SAWDUST (*Ibid*).—If decayed, it is a good manure for your garden. See more on this subject at p. 52.

OLEANDER SCALE (*J. N. B., Halstead*).—Try dipping one of your plants into water heated to 140°; it is said to destroy the scale without hurting the plant. We have found brushing over the scale with spirits of turpentine two or three times, at intervals of two days, a satisfactory remedy.

SPROUTING POTATOES (*S. O., Salford*).—Do not rub off the sprouts, but keep them in as cold a place as you can, in alternate layers with earth, until your land is ready. Charred moss is a good manure for the raw moss-land. Bone-dust dissolved in sulphuric acid does not last so long as bone-dust by itself, but is more speedily beneficial.

ALPINE STRAWBERRY-SEEDS (*C. Goode*).—You can get these of any first-rate London seedsman.

SUPER-PHOSPHATE OF LIME FOR ROSES (*Amateur, Tavistock*).—Sprinkle it over the surface of the bed either in a solid or liquid state, and point it in slightly. Half a pint will be an abundance for each rose-tree. Apply it in the spring annually.

SPENT TANNERS' BAEK (*J. H., Wilts*).—This is of little value as a manure until decayed; and then it might be advantageously mixed with gas-lime, as you propose. It would make very good manure if charred, and we can give no better directions for doing this than you will find at page 83.

GAS-LIME AS A MANURE (*W. J. N.*).—This is a good manure. You have probably, since writing your note, seen the editorial on the subject in our tenth Number.

POTATO-PLANTING IN AN OLD PASTURE (*D. D., Kerry*).—Do not, on any account, add any manure; your soil is fresh and excellent for the crop. Almost the only point on which all agree relative to the potato disease is, that it appears worst on ground recently manured.

HARDY EVERGREENS IN POTS TO PLACE IN BEDS IN WINTER.—Arbor Vite, Arbutus, Aucuba Japonica, Box-tree, Cotoneaster, Trailing Daphne,* Hardy Heaths,* Gaultheria Procumbens,* Hollies, of sorts, Swedish Juniper, Sweet Bay, Ledum huxifolium,* common Lavender, Laurustinus, Mahonia Aquifolia (holly-leaved Barberry), Evergreen Oak, Hemlock Spruce Fir, Cedrus Deodara, Common Rhododendron,* Rusty and Hairy Rhododendron,* Vaccinium Amœnum* (pleasing Bilberry), Yew, Yucca Filamentosa (Thready Adam's Needle), Yucca Recurva (Recurved ditto). Those marked * require to be potted in sandy peat. They should be put in pots suitable to their size at the time, and will do very well in the same pots for two years. The number required will of course depend on the size of the beds. The situation for them in summer should be an open one. They should be plunged in the earth at this season also. At the time of removal from the winter beds, they must be pruned pretty freely, to keep them bushy and dwarf. After the two years, in the spring shake off the greater part of the earth, and re-pot them in the same pots, in which they will flourish again for two years more; after that, either renew them entirely, or give them larger pots. They need not be very thickly placed in the beds, as they are merely used to prevent the naked appearance of the beds during winter.

SOWING PANSY-SEED (*Rev. G. Griffith*).—The best time to sow pansy-seed is as soon as it is ripe. The plants will be sufficiently strong to plant out in a bed of a size suitable to the number of plants. Four inches apart will be sufficient for seedlings. They will flower the following spring. Select such as are of good form, clear distinct colours, and large size. Take them carefully up with a trowel; keep their balls entire, and plant them in a bed by themselves. Give them descriptive names, and propagate as described in a preceding number (the 5th).

PRUNING ROSES (*R. A.*).—We presume our correspondent means by "joints," the wood between the buds. If he will turn to No. 6, pages 56 and 57, he will find an accurate description of pruning roses. The number of eyes to be left, meaning the number of "joints" from the juncture of branch. The mode of pruning referred to is applicable to standards as well as dwarf roses.

VARNISH FOR FENCES (*Inquirer*).—We are trying to get the information you require, and as soon as we can obtain it satisfactorily we shall insert it.

CAULIFLOWERS AND BROCOLI (*Peterj.*).—If taken up carefully, these are not at all checked if planted in trenches, as we directed. Those hung up in sheds will remain good for some time, but should be first used. They keep better there than when exposed out of doors to the frosts and wet of the season.

TABLE OF CONTENTS (*J. Stanley*).—You will have seen by the address to our subscribers in the 12th Number, how we purpose to comply with the wish which you entertain, in common with many of our other friends.

CUCUMBER (*W. M.*).—If you want a prolific variety for January and February, you cannot cultivate a better than the Long Prickly. If you want fruit of superior heaviness, Latter's Victory of England, Sion House, and Victory of Bath, are three of the best.

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WEEKLY CALENDAR.

M D	W D	JANUARY 4—10, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock aft. Sun.	Day of Year.
4	TH.	Rosemary Flowers. [sings.	Hazel. [foot.	8 a 8	3 a 4	2 18	10	5 21	4
5	F.	Botanical Society's Meeting. Wren	Stinking Bear's-	8	4	3 35	11	5 48	5
6	S.	EPIPHANY. Twelfth Day.	Rigid Screw Moss.	7	5	4 50	12	6 15	6
7	SUN.	1 SUNDAY AFTER EPIPHANY.	Portugal Laurel.	7	6	6 1	13	6 41	7
8	M.	Lucian. Plough Monday.	Yellow Tremella.	7	8	rises.	☺	7 6	8
9	TU.	Redbreast commences singing.	Common Laurel.	6	9	5 a 23	15	7 31	9
10	W.	Honeysuckle-leaf opening.	Furze, or Gorse.	5	11	6 36	16	7 55	10

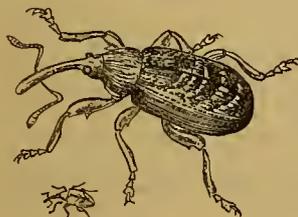
EPIPHANY.—This festival, instituted in commemoration of the shewing of Christ to the Gentiles, or magi, as recorded in the second chapter of St. Matthew's Gospel, is now more popularly known as TWELFTH DAY, and by its seasonable cakes. On this day—the twelfth after Christmas—the festivities of the season were concluded in “the good old times;” and though the origin of many of its customs is obscure, yet it is observed in some mode in all Christian countries. “Drawing King and Queen” is a game as old as the time of the ancient Greeks and Romans.

LUCIAN lived in the middle of the fourth century. He was presbyter of the church at Antioch, and deserves praise—though not a festival—for the care he took in preserving the text of the Hebrew Scriptures. The first Monday after Twelfth Day was named PLOUGH MONDAY by our forefathers, because on it they returned to tilling their soil.

PHENOMENA OF THE SEASON.—Hoar frost—that white feathery

clothing which fairy fingers seems to have scattered, so silently and lightly, over even the minutest blade of grass—now prevails, and is so beautiful, that we incline to wish it more permanent. Yet it is no more than the frozen vapour of the air, dissolved by the sun's earliest beams, and rarely occurring more than three or four days successively. So short is their succession, that it is a common saying in some country districts, “Hoar-frosts and gipsies never stay one days in a place.” It has been well said, that at such times silence and purity, as a mantle, are thrown over the earth—and this simile was suggested by the colour of the frozen particles, and the entire absence of wind when they are formed. Hoar frost is nothing but frozen dew. Warm air holds, dissolved, more moisture than cold air will hold; consequently, when cooled at night, the air deposits some of its moisture: the moisture so deposited is dew,—but if the cold is low enough, the moisture freezes as it is deposited, and then is called a hoar or rime frost.

INSECTS.—At this season of the year, and especially during frosty weather,



	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
4 Highest & lowest temp.	Frost. 35°—29°	Frost. 37°—23°	Showery. 43°—29°	Cloudy. 51°—34°	Cloudy. 45°—36°	Rain. 43°—22°	Cloudy. 43°—39°	Fine. 49°—27°
5	Frost. 33°—22°	Frost. 36°—30°	Showery. 41°—31°	Showery. 54°—44°	Showery. 53°—42°	Frost. 39°—21°	Cloudy. 46°—33°	Showery. 46°—24°
6	Frost. 30°—12°	Snow. 37°—23°	Frost. 41°—34°	Fine. 52°—36°	Fine. 54°—43°	Fine. 47°—44°	Showery. 43°—40°	Fine. 40°—26°
7	Frost. 27°—6°	Frost. 35°—28°	Cloudy. 46°—36°	Fine. 46°—25°	Cloudy. 54°—32°	Cloudy. 48°—43°	Cloudy. 42°—37°	Showery. 40°—27°
8	Frost. 20°—6°	Snow. 34°—26°	Showery. 42°—30°	Frost. 44°—35°	Cloudy. 35°—31°	Cloudy. 50°—41°	Cloudy. 39°—34°	Cloudy. 38°—29°
9	Frost. 33°—27°	Frost. 30°—27°	Frost. 47°—32°	Cloudy. 40°—33°	Cloudy. 35°—28°	Cloudy. 49°—47°	Cloudy. 36°—22°	Frost. 33°—28°
10	Showery. 39°—31°	Frost. 31°—25°	Rain. 42°—30°	Showery. 48°—30°	Cloudy. 49°—30°	Showery. 42°—37°	Showery. 33°—24°	Cloudy. 32°—29°

the rough bark of apple and pear-tree stems should be scraped off, for the purpose of destroying the Apple-Weevil (*Anthrenus Pomorum*). It shelters itself beneath the scurfy bark during the winter, awaiting the return of spring to renew its attacks upon the blossom-buds. “This insect,” says Mr. Curtis, “commits great devastation in apple-orchards, by destroying the stamens, pistil, and receptacle of the flower.* As soon as the blossom-buds swell, the female beetle begins to deposit her eggs. In calm weather she selects a good bud, and makes a hole in it with her rostrum (long beak); she fixes herself at the hole, lays one egg, and goes on till she has deposited a considerable number of eggs in separate buds. The bud continues to swell, and the petals (flower-leaves) nearly expand, when suddenly the growth ceases, and the petals wither and assume a shrivelled appearance. If one of these flower-buds be examined when nearly expanded, a small white grub, with a black head, will be found in the centre, which begins to assume a yellowish colour; a few days later, the grub will be found either wholly or partially changed to a beetle—and should there be a small hole on the side of the receptacle, the beetle will have escaped: the transformation from the egg to the perfect state not having occupied more than a month. When this beetle, or weevil, leaves the receptacle, it feeds during the summer on the leaves of the trees, and is seldom to be seen. In the autumn, the weevils leave the trees, and search for convenient hiding-places under stones about the trees, or under the rough bark, in which they pass the winter. Consequently, as they commence their operations early in the spring, care should be taken to remove all stones, dead leaves, and other litter, from under the trees, as well as to scrape off the rough dead bark from them in the winter season. The apple-weevil is also very injurious to pear-trees.” This beetle, or weevil, is scarcely one line and a half long; its wing-cases are dark brown, with whitish-grey stripes; its antennae (horns or feelers) spring from the middle of its beak, and all these parts, as well as its eyes and the under part of the body, are black.

* *Stamens*—the male part of the flower; *pistil*—the female part. *Receptacle*—that part at the end of the flower-stalk into which all the other parts of the flower are inserted. The pistil is in the centre, and the stamens round it.

WE have had upon our table, for some weeks, a little volume, entitled “*Gardening for Children*,” edited by the Rev. C. A. Johns; and, though it does not possess all the excellence attainable in a work on such a subject, yet there is much in it that is good; and though, like all first steps, it may be but a small advance towards the end of the journey, yet we must remember that, without such first steps, that end could never be reached.

The theme, the object, of the volume is of far more importance than may strike upon the mind of those who are too content with gliding over the surface of things, and are satisfied with waiting for others to suggest a thought which they will take up and circulate.

“*Gardening for Children*,” like “*The Rural Spelling Book*,” is wisely associating useful as well as amusing information with the earliest efforts of the mind in its search after knowledge. “Seeds are best

sown in rows, for the sun and air can then get to the plants, which come up from those seeds, and the hoe can with ease cut down the weeds," would be a lesson which might be remembered with advantage through life, and quite as easy to learn as those crudities of Mavor or Vyse—"He is a good boy, but she is a bad girl."

"Gardening for Children," we repeat, is a step in the right direction; it is teaching not merely words but things—it points the same way that the new regulations of Cambridge point, by which a man of science may now take honours as well as a man of letters. This we think a measure of unalloyed good, for although we honour as highly as any can honour those who excel in classical and mathematical attainments, yet we do not, therefore, honour the less such men as Davy, Faraday, Wedgwood, Watts, Miller, Abercrombie, Paxton, Beaton, and Errington. These are the men who apply science to the business of life; and we know of no reason why we should not, or rather we know of every reason why we should, promote a system of education which cannot fail of facilitating the calling up of such men from among the educating children of England. On this point we quite agree with the very able "*Report of the Reigate Cottage Gardener's Society*." We think, as its author thinks, that,

"To a proper knowledge of every business, and every kind of work, education or training may be considered to be absolutely essential; but the farm labourer has, properly speaking, no training at all—he is left to pick up whatever knowledge of farming-work he can attain just as he may. In rural districts there might be a combination of manual labour in field or garden work with scholastic instruction, after the pupil leaves the elementary school, in subjects to be understood by older boys, including a knowledge of the nature and structure not only of the 'plants of the farm,' as the subjects of agricultural and horticultural growth, but also the forms and properties of other obvious natural productions of the vegetable world, and be made to know whether they are salutary or noxious to man or other animals.

"From want of some of this mental discipline, very easily administered, the intellectual faculties of the ploughboy remain unawakened; and even his senses are insusceptible of impressions.

"The beautiful productions which spring up beneath his feet excite no attention or observation. He sees not, and heeds not, the birds of the air, their songs and plumage. The gay colours and graceful forms of animated nature excite no thought nor contemplation in his mind, which remains a blank, so far as respects the healthful and the beautiful; into which, therefore, intrude inferior thoughts and considerations, leading to habits too often injurious, if not fatal to purity and integrity of mind and conduct.

"A knowledge of the structure and habits of animals, and the nature and care of the live stock on the farm, to be subjected to the care of the farmer's boy, should be imparted to him with the habit, on principle, of treating them with gentleness and humanity.

"As also should be all kinds of farming and gardening work; and something of an apprenticeship, however short, should be served under those working

men who have superior skill and ability, and excel in particular departments of agricultural labour. For their use also, whenever practicable, there will be a great utility in the establishment of evening schools.

"In advocating the cause of education and training, it may be with perfect truth affirmed, that the lowliest of mankind have minds to be cultivated, and souls to be saved, as well as bodies to be maintained in health and vigour, equally with those higher in the scale of society: and with those to whom the argument of the purse outweighs every other consideration, any small additional expense which may be incurred will be amply compensated by having a sober, industrious population, who depend for their maintenance on the fruits of their own exertions; and we may be assured that it is cheaper and more economical to educate the working classes into good, and useful, and valuable members of society, rather than to incur heavy poor-rates; and, in many cases, the expense of prosecuting them as criminals.

"Many boys and youths whom we see attending the plough, or trudging beside the cart, have nowhere to sit down after their day's work is finished, and often scarcely where to lay their head. The village youth know not where to go. The public-house or beer-shop alone is open to them. Its fire and candle, its company, its other attractions, constitute the only form of welcome within their reach. It is as the club or other place of resort to the homeless man of the world: yet that all-receiving home is the hospitality of their ruin—the conversation, the examples, the counsels of such places are fatal to them. Hence ensue degradation of mind and low morals: thoughtless, premature, and improvident marriages are too often contracted, with the probable consequences of domestic discord, continued resort to the beer-house, with subsequent reliance on parochial assistance rather than on the results of a well-regulated economy and industry, and all the evils of poverty, self-reproach, bad health, and their accompaniments, complete the unhappy state.

"Very recently, with the view to diminish the great and deplorable evils attending the poor lads who are left to their own guidance, and to the evil influences which surround and beset them, Mr. Baston, of Kynaston Court, has provided accommodation for twenty boys on his premises, where they are fed on plain and wholesome food, and are taught and employed in all kinds of farm-labour, under a superintendent, who also during the evenings, after the work of the day is over, instructs them in reading, writing, and arithmetic, and in a knowledge of their religious and moral duties, in all which, moreover, Mr. Baston *himself personally* assists.

"Mr. Baston gives a detailed statement of expenses and profits, proving that even in a pecuniary light the plan is advantageous to the employer as well as to the boys, besides taking into account the elevating and happy influence of this course of life on the present and future character of the boys who are so fortunate as to be under the wing of this benevolent man."

"The Philanthropic Society" have entered upon the same hopeful course on a still larger scale. Its managers are disposing of its present collegiate-looking premises near London, and are proposing to found a kind of colony at Potter's Bar, near Barnet. This Society has for its object the reformation of criminal and other children who, indeed, "have none to help

them;" for the parents and relatives of such unfortunates are calculated to aid them on to ruin, and to ruin only. At that colony the boys are to be associated in families of sixty, and here the industrial training, instead of being confined to mechanical trades, is now to embrace full instruction in the arts of gardening and farming. This is all as we wish, and we know of no reason why similar establishments should not be founded in every county in England. When this is done,—when the rural population have been duly educated,—when the *fifteen millions of acres* at present waste land in Great Britain and Ireland are duly allotted and cultivated,—we shall see the necessity for emigration cease. Emigration is an evil; for, however it may be disguised, it is an evil for a country to have to part with its industrial inhabitants, and it is an evil, a heart-breaking sorrow, for these to leave their homes and to depart into exile.

We have touched upon so many subjects which have rushed upon our thoughts as we addressed ourselves to the consideration of "Gardening for children," that we have but a brief space to allot to a consideration of the work itself. The first forty pages are uselessly occupied with descriptions and pictures of every-day flowers,—descriptions, too, in many instances, falsely exaggerated. For instance, who ever saw a tree-larkspur with flowers so vividly blue and bright "that the eye cannot rest on it without inconvenience?" The best part of the book begins at p. 62, and continues passably good throughout "the Kitchen-garden," though there is some bad gardening in it, and no small ignorance of natural history. What is meant by "every pair of wasps killed in spring saves the trouble of a swarm in autumn?" The writer of this evidently is ignorant of the fact, that every wasp seen in spring, if not destroyed, will be the foundress of a nest. The "Maxims" at the end of the book form the best portion of its contents; and it would have been well if the author had thus written one of these maxims, and kept it upon his desk whilst preparing this little volume for the press:—"Do nothing carelessly; whatever is worth doing at all, is worth doing well." There is much that is good in its pages, but more that might be amended, and a larger portion still that might be omitted, to make room for more useful information.

THE FRUIT-GARDEN.

HAVING now fairly turned our backs on the year 1848, with all its anxieties, it may not be amiss, with the rising year, to take a retrospective glance at the position of gardening affairs, as far as relates to the amateur and cottage gardener. The spring is at hand, and a corresponding amount of increased animation will soon begin to be felt by all parties concerned in the culture of the soil; and we do trust that our unassuming periodical, during the year 1849,

will not only prove of essential service to the classes above named, but that the farmer also, who possesses much interest in a well-cultivated garden, will derive benefit from our labours, for there is much room for improvement.

Amateur gardening has, indeed, made very rapid advances within the last seven years. Most of the possessors of gardens of this class are great readers; and it must be confessed, we think, that much of the horticultural literature during that period has pretty well kept pace with the spirit of the times; and not only recorded the solid improvements already made, but paved the way to increased success by suggestions based on sound principles. The hypothetical and prescriptive character for the gardening of bygone days has been severely tested by hundreds of practitioners, who at once combine high scientific attainments with great experience; and the result has been a greater amount, as well as certainty, of success in the various departments of gardening, as also a surer footing as to future progress.

Whilst on the subject of amateur gardening, there is a point or two to which we would direct the special attention of persons of this class. We all know that within the last few years much attention has been paid to the question of the food of plants, both in a general and a special sense. This has, of course, led to much scientific investigation as to the relative merits of various manures; and much good has, beyond doubt, resulted from it. This is all as it should be. Still, however, a vital point, connected more immediately with the permanent improvement of the soil, lies somewhat in the background. We here allude to the improvement of the mechanical texture of soils; in other words, the improvement of their staple. This is, indeed, the grand basis of all true improvement, without which the manure-question must merely "creep where it ought to soar."

Everybody knows that open sandy soils are hungry soils; everybody also knows that it is of little use multiplying the amount of manures in stagnant clays or boggy soils, unless drained. Here, then, we come to the matter of mechanical texture, which indeed is one of vast importance. Thorough drainage must, of course, precede all attempts at improving the texture in the case of adhesive soils, whilst the sandy ones before alluded to require a solidifying or retentive principle to be added to them; and all this independent of the question of manures. As the spring advances, we do hope to shew how these things may be done; they are simple in principle, and more or less within the reach of most of our readers at one period or another.

We would now offer a few words of advice to that useful class in society, the industrious cottagers. "Take Time by the forelock," is an old saying, and the maxim holds good in all gardening affairs, and more especially so at the commencement of a new year. Let it be borne in mind, that one hour's labour omitted at a necessary period will generally lead to the loss of half a dozen in the end. Let every cottager feel persuaded within himself, that every hom's *well-directed* labour, whether in cleaning his crops, extirpating inveterate weeds, digging his soil deep, or in securing everything at all times in the shape of manure, will amply repay him. "Cast thy bread on the water," says the wise Solomon, "and it shall be seen after many days." Indeed, in the inspired writings may be found abundance of maxims, as applicable and suggestive now as in the days which produced them.

To the cottager especially we would point to more

care in the collecting of manures during the ensuing year. Guano and other highly concentrated manures may be out of the reach of most of this class, but it lies in the power of all to husband well those within their reach; and, moreover, much to increase the bulk of their middens, or manure-heaps, against another year, by a provident forecast and a due attention to the principles which will be pointed out weekly in *THE COTTAGE GARDENER*. Having offered these suggestions, which apply as well to successful fruit-culture as to vegetables, we must proceed with some details.

PLANTING FRUIT-TREES IN POOR SHALLOW SOIL.—Our attention has been directed to this subject in consequence of a letter from a correspondent, who, it appears, is about planting an orchard, and whose soil is described as a hungry sand, of about a foot deep. Our correspondent proposes to dig holes two feet or more in depth, and to fill a great portion of the excavation with weeds and refuse vegetable matter. This case is so much in point, as an illustration of a bad course of culture, that we seize it to warn our readers, as well as our correspondent, against such a course of practice. We must protest, at the very outset, against making holes any deeper than the ordinary depth of the surface-soil, whether in the case of fruit-trees or shrubs. We have known many trees thus planted, and have invariably found them a failure, after being planted a few years. Indeed, how could it be otherwise? It is evident that the fibres will be induced to go down below the level of the ordinary soil, and in that event must either penetrate ungenial subsoils, or be liable to premature decay. As to the penetration of a bad subsoil, he must be a bold cultivator who would consider such as a trifling matter. All subsoils, of course, are not precisely alike, and we have known the roots of trees descend into some without any apparent ill effects. It is well, however, not to trust to this chance, for deep roots are at all times inimical to the ripening of the wood, and this is a necessary point even with ordinary fruit-trees. Besides, our correspondent's weeds and decaying vegetables would so rapidly sink in volume by means of decay, that if planted on the level at the first, they would within a twelvemonth be sunk nearly a foot below the surface level; and in that event two-thirds of the bulk of the roots would be surrounded by a mass of bad subsoil, which in this case is a hungry sand; and we need scarcely observe, that premature decay must of necessity ensue. The tree would be in a similar condition to a plant in a deep garden-pot, with little soil beneath, yet plenty above out of its reach, and starving, although surrounded by plenty.

In all cases, therefore, we say, never let prepared soil descend into the level of the subsoil; the bricks or stones necessary for the bottoms of the holes may indeed be in part a little below, but care must be taken that their surface rises a little above the subsoil surface. In clay or cold soils it is absolutely necessary to plant on the ordinary ground-level; that is to say, after the necessary preparations have been made in forming a *station*, in which event the tree will appear to stand on a mound when the planting is completed. Where soils are of a shallow, dry, and hungry character, it is advisable, in all cases, to form the bottom with clay; this we have repeatedly practised, beating the clay into a mound, rising in the centre. We have removed trees which had been thus planted after a lapse of eleven years, and have generally found a great body of useful fibres, like a network, over the surface of the clay. In addition to this

we would throw lumps of clay amongst the volume of the soil as we filled it in the holes, especially if for apple-trees: this would prove a reservoir of moisture during periods of drought. Marl may be used instead of the clay, if to be had; in such cases we should give the marl the preference.

PRUNING.—As weekly calendarial matter we may beg to remind our friends of pruning and training matters. Another week or two and we shall fancy we perceive the bud swelling, as indeed it does all through the winter, although imperceptibly at first. We have more advice to offer about the planting of fruit-trees, as well as the selection of kinds, and we shall deal with such subjects during the next six weeks, in order to assist our readers in their spring-planting. Let us, therefore, advise those who feel at a loss in such matters to defer their fruit planting until February. We will in the meantime offer some advice which may be relied on. At present, *stations* for their reception can be duly prepared.

R. ERRINGTON.

THE FLOWER-GARDEN.

SHRUBS FOR A WALL.—As some of our friends have made the inquiry, what kind of shrubs, climbing or otherwise, will do for a wall, we shall with pleasure devote a few lines to the subject for their benefit. Much will depend upon the aspect of the wall as to the kinds proper to plant.

THE BORDER.—The first thing to attend to is to prepare the border. The soil should not be rich, as the object is not so much to grow them rapidly or strong as to have a variety of moderately grown and freely flowered plants. The border need not be wide; if it be four feet it will be quite sufficient. Even two feet will do, and it will be more convenient, as it will allow the operations of nailing and protecting the shrubs to be more conveniently performed. A good compost for them is formed of one-half loam and one-half sandy peat, well mixed, but not made too fine. If the situation is low and wet it must be drained, and a quantity of brick ends, or broken stones, or clinkers, put at the bottom about four or five inches thick. The depth of the compost need not be more than sixteen inches. Should a walk be next to the border, the drain can be under the walk, and an edging of box planted. The compost should be put in two or three inches higher than it is intended to be, to allow for settling.

PLANTING.—When all this is properly executed the shrubs may be planted. As it is desirable to cover the wall as soon as possible, there ought to be some things planted for immediate effect. Such as are intended to be permanent, ought to be legibly named with such a label as may be easily read. Each may be conveniently hung up, or nailed to the wall, close to the plant it belongs to. It would be well if the natural order, as well as the botanic and English names, were written on each label. This would be a great help towards learning botany, a science so delightful and pleasant that every one from the highest to the lowest ought to know something of it. Indeed every plant in the flower-garden ought to be so named, whether the garden belongs to the nobleman, the amateur, or the cottager. If this was generally done, what a grand amount of knowledge would be opened to the rising generation, both rich and poor. We

shall return to the subject of naming plants in some future number more fully.

TRAINING.—The border being made, and the shrubs planted, the next operation will be to fasten them to the wall. Even this simple operation may be done several ways. The most common method practised is with shreds of cloth and nails. The shreds are generally made of the list, or outer edging, of woollen cloth, clipt into suitable lengths; longer for the thick branches, and shorter for the small ones. This list can be procured from the tailors. Cast iron nails, on account of first cheapness, are mostly used, but hammered nails are the best, and cheapest too, in the end. Another method of fastening shrubs to the wall is by having a trellis of wooden laths previously to planting set up against and nailed to the wall, so as to allow matting or twine to pass under each lath to tie the shrubs to. This plan, when the trellis is neatly made, and painted green, has a very ornamental appearance, but there is an objection or two to it: it is rather expensive; is liable to decay, and harbours dead leaves and insects. The next plan we shall notice is that of having cast iron nails with an eye to each. These can be driven into the wall, at certain distances, between every other row of bricks, where the wall is of that material. The plants can be tied to those eye-headed nails, and this will answer pretty well. In our opinion, however, the best plan to adopt for this purpose, is that of using long lengths of copper (iron or zinc) wire stretched horizontally along the wall, at about nine inches apart. It can be fastened to the wall with such eyed nails as we have just mentioned, or with iron staples. Now the using of copper wire for this purpose has several advantages: one it has, in common with the two last, that when once fastened to the wall, there will be no more need of injuring the mortar by driving in or drawing out nails, as is done by the nail and shred system. The roundness of the wire will not be so liable to injure the branches as the wooden square trellis, or the sharp edges of the eye-headed nails. The shoots, as they advance, can be tied to each succeeding wire in a straight direction quite as well, if not better, than by the shreds. Neither dead leaves nor insects will harbour so much under the wires as they would under the trellis; and, lastly, that it is less liable to decay, or get out of order, than any other method.

The following is a select list of shrubs suitable for this purpose:—Those marked with an asterisk may be used where the extent of wall is moderate. The whole are well worth cultivating where there is room for them.

DECIDUOUS.

- **Amygdalus persica flore pleno*. Double-flowering peach.
- Berberis dulcis*. Sweet berry.
- fascicularis*. Bundle-flowered ditto.
- trifoliatus*. Three-leaved ditto.
- Cercis siliquastrum*. Long-podded Judas-tree.
- **Chimonanthus fragrans*. Sweet Chimonanthus.
- **Cydonia japonica alba*. White Japan cydonia, or flowery pear.
- rubra*. Red ditto.
- Hydrangea quercifolia*. Oak-leaved hydrangea.
- **Magnolia conspicua*. Showy magnolia.
- Soulangiana*. Soulangé's ditto.
- **Punica granata*. Pomegranate.
- Ribes speciosa*. Showy gooseberry.

- Robinia hispida*. Hairy rose acacia.

EVERGREEN.

- **Ceanothus cæruleus*. Blue ceanothus.
- Cistus ludaniferus*. Gum cistus.
- **Cotoneaster microphylla*. Small-leaved cotoneaster.
- Escallonia Mantendensis*. Monte Video Escallonia.
- Jasminum fruticans*. Shrubby jasmiae.
- Laurus nobilis*. Sweet Bay.
- Ligustrum sinense*. Chinese privet.
- Magnolia grandiflora*. Large-flowered magnolia.
- Ermouthii*. Lord Ermouth's ditto.
- Phlomis serrulata*. Saw-leaved phloxin ia.

CLIMBERS.

- Ampelopsis hederacea*. Ivy-leaved Virginian creeper.
- Atragene Austriaca*. Austrian atragene.
- Siberica*. Siberian ditto.
- **Bignonia radicans major*. Larger-rooting bignonia.
- **Clematis azurea grandiflora*. Large blue clematis.
- florida*. Florida ditto.
- pleno*. Double ditto.
- flammula*. Sweet do.
- Hendersonii*. Henderson's clematis.
- Sieboldii*. Siebold's ditto.
- montana*. Mountain ditto.
- Corchorus japonicus flore pleno*. Double Japan corchorus.
- **Crategus pyracantha*. Evergreen thorn.

- Eccecmocarpus scaber*. Rough eccecmocarpus.
- **Hedera Helix*. Ivy (several varieties).
- **Jasminum officinale*. Common jessamine.
- revolutum*. Revolute-flowered ditto.
- **Lonicera Italica*. Italian honeysuckle.
- coccinea*. Scarlet do.
- flexuosa*. Twining ditto.
- grata*. Evergreen do.
- sempervirens*. Trunpet ditto.
- **Passiflora cærulea*. Blue passion-flower (rather tender).
- Mayana*. May's do.
- poluata*. Hand-leaved ditto.
- Vitis riparia*. Sweet vine.
- **Wistaria sinensis*. Chinese Wistaria.*

In addition to the above, the following climbing roses would make a very agreeable variety:

- Amodis*. Crimson.
- La Biche*. Creamy-white.
- Laure Davoust*. Pink.
- Ayrshire queen*. Dark crimson.
- Boursault elegans*. Crimson purple.

- Felicite perpetuelle*. White.
- Gracilis*. Deep blush.
- Madame d'Arblay*. White.
- Miller's climber*. Purple.
- Yellow Bankian*.

To fill up the wall until the permanent shrubs cover it, annual creepers should be planted, such as *tropeolum canariense* (canary nasturtium), *maurandya Barelayana* (Barelay's mamrandya), *lophospermum Hendersonii* (Henderson's lophospermum), *rhodochiton volubile*, or *lophospermum rhodochiton*, (*Twining rhodochiton*), *cobæa scandens* (climbing cobæa).

Should these not be sufficient to cover the wall entirely, fuchsias, scarlet geraniums, some strong growing verbenas of different colours, heliotropes, phlox *Drummondii*, *minulus glutinosus*, and *M. puniceus* may be planted during the first summer.

We have seen all the above used with very good effect. Where expense is no object, more tender things might be planted, such as myrtles, oleanders, camellias, *aloysia eitriodora* (the lemon plant), *azalea indica*, *alba buddlea globosa* (globe-flowered buddlea), *clethra arborea* (tree clethra), *clianthus puniceus* (scarlet clianthus), *coronilla glauca* (glaucous coronilla), *daphnes*, several species. *Erythrina cristagalli* (coral tree), *metrosideros floribundus* (bundle-flowered metrosideros), *pittosporum tobira*, *veronica speciosa* (showy speedwell), *V. salicifolia* (willow-leaved ditto). Should any or all of these last-named be planted, they will require protection from frost. The best and most effectual is, to have thick straw mats, fastened to a frame of wood, and when frost is likely to occur, to set them up against the plants requiring protection, taking care that they fit close; over these, in extra severe weather, put a double thickness of Russia mats; over the roots place dried fern, or dried stable litter.

FLUED WALL.—Should the wall intended for those ornamental plants have to be built, it would be very advantageous to run flues in it, so that it could be gently heated to keep off the frost. This would save a great deal of the trouble of protection. Now the question may be asked, is it worth while to be at all this trouble and expense? We answer, just visit Chatsworth, and see the conservative wall there; and that wall, we think, would convince the most doubting. The beauty of the plants, in perfect health and luxuriance, must please every visitor. We mentioned, at the beginning of this subject, that much would depend

* Called at first *Glycine Sinensis*—Chinese *Glycine*.

upon the aspect. Now, the best aspect for all the above plants is south-east or south-west. The south itself we consider too hot; it would render the plants too tender to withstand the cold nights of early spring or autumn.

FLORESTA' FLOWERS.

THE CARNATION AND PICOTEE.—(Continued.)—At this season of the year, these plants only require protecting from very severe frost, and keeping moderately dry; about once a month stir the surface of the soil, and keep a good look out for snails and slugs. Should any of the leaves appear yellow, you may be sure the wire-worms are at work; search in the soil for them instantly, by moving the earth from the stem. Should you not find them, lay a trap for them. A small potato cut in three pieces, and laid close to each stem, and covered slightly with soil, is the best of all decoys. The worm will feed upon the potato, and if looked for about every other day, you will soon be rid of these destructive pests. For the information of new beginners, we have made a selection of a few good kinds, arranged in their colours, with the price of each. We have not selected the newest and dearest sorts, for these are not always the best because of their dearness or scarceness.

CARNATIONS.

Names.		Raisers.	PerPr.	s. d.
<i>Scarlet Bizarres.*</i>				
Lady Ely	.....	Ely	.....	2 6
Lovely Ann	.....	Ely	.....	3 6
Village Maid	.....	Greasley	.....	2 6
Don John	.....	Twitchett	.....	3 6
Duke of Wellington	.....	Smith	.....	2 0
Gay Lad	.....	Holliday	.....	5 0
Leader	.....	Hepworth	.....	2 0
Lady Peel	.....	Puxley	.....	3 6
<i>Crimson Bizarres.</i>				
Duke of Bedford	.....	Ely	.....	2 6
Georgiana	.....	Jaques	.....	2 6
Paul Pry	.....	Wakefield	.....	2 6
Rainbow	.....	Elliott	.....	2 6
Shakspeare	.....	Mansley	.....	2 6
<i>Pink and Purple Bizarres.</i>				
Epaminondas	.....	Hogg	.....	2 0
Iris	.....	Jaques	.....	2 6
Queen Victoria	.....	Smith	.....	2 6
Woodcock's Seedling	.....	Woodcock	.....	2 6
<i>Purple Flakes.†</i>				
Colonel of the Blues	.....	Hogg	.....	3 0
John Wright	.....	Ely	.....	2 6
Lady Howe	.....	Hale	.....	2 6
Mary Anne	.....	Malpas	.....	2 6
Princess Charlotte	.....	Turner	.....	2 0
<i>Scarlet Flakes.</i>				
Brilliant	.....	Chadwick	.....	2 6
Earl of Leicester	.....	Wigg	.....	2 6
Firebrand	.....	Hardwick	.....	5 0
Mary Anne	.....	Greasley	.....	3 6
William IV.	.....	Wilson	.....	2 0
<i>Rose Flakes.</i>				
Flora	.....	Chadwick	.....	2 0
Harriet	.....	Wilson	.....	3 0

Those kinds marked H are heavy-edged; that is, have a deep border of the colour round each petal. Those marked L are light-edged. Those not marked are intermediate.

T. APPLEBY.

* *Bizarre*—a carnation, marked with two colours on a white ground.

† *Flake*—a carnation marked with one colour on a white ground.

‡ *Picotees* differ from carnations only in their colour being confined to the edges of the petals or flower-leaves.

GREENHOUSE AND WINDOW GARDENING.

GERANIUMS.—You ask me how it is that your aunt Harriet's geraniums are never killed by the frost, although she has only a common window to keep them in? Whether there are some geraniums more hardy than others, and if it be true that geraniums ought to be cut down every year? Allow me, before I answer you, to express a hope that you have not lost your own geraniums last winter, as you did the winter before, and to ask whether you have consulted your aunt as to her mode of management? As I should rather prefer to explain to you, first, any points in her management, which you may not have understood properly, before I enter on the subject in my own way. You admit, then, that she did give you a "whole history" of her proceedings, but that she so mixed up her details with anecdotes of her losses, anticipations, failures, success, and you know not what else besides, that you could only recollect that part of her story which related to some cuttings she gave you at the time, from those old plants of her's, which you believe will never die as long as she can attend to them herself. Now, I think, you have given me a clue to the history of your own gardening attempts. You have been admiring those beautiful geraniums, in which dear aunt Harriet takes so much delight; and, indeed, who could see them without being struck with her good management! she told you how to strike the cuttings, and gave you full directions how to manage the plants afterwards; but in your hurry to be a gardener all at once, you forget the most useful part of her instructions; you soon rooted the cuttings, but that is nothing to do with growing the plants well; they blossomed, no doubt, and you let the frost kill them the first winter; and now you hear that every one in the parish will have window plants next year, owing to this "COTTAGE GARDENER," which is in "every body's mouth," and you come to me with a string of queries, rather than let aunt Harriet know how slightly you valued her instructions—of more value, too, as being the result of many years' attentive observation. Now that we understand each other so far, I have no doubt I shall be able to refresh your memory about many of the main features in aunt Harriet's account of her present practice with her geraniums. In the first place, she told you it was many years before she knew how to prune them right; they used to get so long in the branches, and so naked below, for want of leaves, that she often resolved to break off the points of the shoots, to see what effect that would have; but she always discovered another set of blossom-buds just formed, and she thought it would be a pity to lose such treasures; for she was always fond of flowers. At last, the geraniums became so tall and unsightly, that she had some thoughts of throwing them away altogether, and to buy a fresh lot of young ones. Before she had made up her mind, however, for this extremity, an unusual hard winter set in; and notwithstanding her previous misgivings, she took the best possible means within her reach to preserve them from the frost. She even went so far as to lay them down lengthwise, under her sofa, during two or three of the hardest nights; for they were so long-legged, that they could not stand under the table opposite the fire-place, as they did on former occasions. She also was aware that no water should be given them during such a hard frost; yet, after all, they did not pass through this ordeal without considerable damage; indeed, she thought at first they

were killed outright, till she found the bark on the bottom of the stems, near the pots, was still fresh; but, as the leaves and green parts were all frosted, she gave them up for lost: or, at least, she thought she did; but it was difficult to get rid of the idea that, "as long as there is life there is hope." Time passed on, and fine spring weather opened at last, and one day she thought she could see a bud swelling out on the dry stem of one of the plants. She could hardly believe her own eyes; she then cut off the remains of the frosted parts down to the live stumps, and gave the pots a little water—the first drop they had since the commencement of the frost two months before—and in less than ten days all the plants gave evident signs of life. In a short time the whole were in full leaf again; some of the plants having shoots as close together as they could stand. When she thought upon them after this, she could breathe freely.

The next point to settle was, how so many young shoots were to be disposed of? She got over this by rubbing off one here, and another there, till at last there were only from six to eight shoots on each geranium; and as these kept crowding on each other, owing to their strong growth, and larger than usual leaves, she trained them to sticks placed all round each pot, in such a way as that all the shoots were at equal distances from each other. When she got them in this trim order, she thought she never saw plants look so beautiful before; and by the time they came into blossom, they were such big plants, their blossoms larger than they used to be, and such quantities of them, and the leaves were so glossy, so large, and hanging over the pots so boldly in all directions, that she was obliged to remove some of them to other windows than those of her sitting-room; and in the distribution, Susan, the maid, got one of them for "her own self," as she used to say. Aunt Harriet says, to this day, that Susan was the best girl she ever had for looking after the geraniums; that she never knew her to dust the parlour without first setting the plants outside the window, or into the next room, if the weather was cold, to preserve them from the dust. Susan has been married now some years; her children are the tidiest in the village; her cottage is always orderly and scrupulously clean, and everything Susan puts her hands on seems to prosper and do well. You may be sure there are no want of common flowers about her door, and a well-kept geranium in the window; and all this, and much more besides, may be dated from the happy day on which Susan got the geranium for her "own self" from aunt Harriet.

Anything we learn by actual experience is less likely to be forgotten than such things as we learn from conversations or books. The effects of that hard winter taught your aunt many things with respect to her plants; indeed, it may be said to have laid the foundation of her success in after years. In the first place, she saw the great improvement caused by the accidental death of the tops of her geraniums; the beautiful bushy plants they made in consequence, paved the way to her present system of cutting them in so close every autumn; and this is a direct answer to one of your questions. Then, as to the hardness of one sort over another, aunt Harriet perceived at once, that if her plants were young, with green stems all down to the pot, she must have lost them that very hard winter; whereas those parts that were ripe, hard, and dry, resisted all that long frost, so that the supposed difference of hardihood in window geraniums turns out to be owing to their various ages and degrees of ripeness in their shoots. The younger plants are, therefore, the more liable to be frost-bitten, and this

is one inducement, among others, to try to keep plants over the winter.

Did aunt Harriet ever tell you that she pruned the roots of her geraniums as well as their branches? Probably you never thought to ask so strange a question, otherwise she would have readily told you what an excellent plan it is, seeing she is so kind as never to make a secret of any plan she finds useful for her geraniums; nor has she ever been known to refuse a cutting when she could spare one. There is no doubt but she would have told you about cutting the roots had you not been so thoughtless as to say to her that you thought it ridiculous in any one to cut down a geranium while it looked "green and healthy." It is thus with us all: we never learn to do things in the right way while we hold strong opinions of our own. You say you cannot understand how it is that aunt Harriet's geraniums are re-potted or shifted twice every year, (as she says they always are,) and yet they look as if they were in the same pots ever since you knew them. I can easily conceive how she manages that; and it is a further proof, if such were needful, of her excellent management. But I see how it is: under this modest disguise of assuming ignorance as to your aunt's management, you want me to say how the gardeners manage their geraniums; but having led me thus far, I had better go on with what I conceive to be the main feature in your aunt's proceedings, and if I miss any essential point, please to let me know after you consult her, and I shall let you hear in a future letter how the gardeners succeed best. Well, then, to make the story more clear, I shall follow the fate of those geraniums that were frosted, presuming that they had been treated according to her present experience. You recollect these did not come into leaf till early in March, owing to the accident, therefore they did not come into blossom till six weeks after their usual time, and this taught her to prune some plants in the spring, on purpose to make them flower later than those which were pruned in the autumn, at the usual time; and that is the secret of her having plants in blossom most part of the summer. Of course she does not cut her spring shoots quite down, as she was obliged to do with the frosted ones; she merely breaks off an inch or so from their points. From the middle to the end of this month (January) is her usual time to "stop" the shoots of a couple of beautiful plants she always gets into bloom about Midsummer-day. She cuts two more plants at the end of February, to succeed the Midsummer ones. Some people, when they hear that soapsuds and other liquid manures are good for geraniums, give them large doses of these as soon as they begin to grow in the spring. Your aunt has given up that plan long since. She found that with the rich mould they were potted in, the use of stimulants in the spring tended rather to lengthening the shoots than increasing the size or brilliancy of the flowers; and short stout branches are one of her evidences of good management. As soon, however, as she can perceive the blossom-buds formed in little clusters, she begins to water them with soapsuds and other strong water, which I need not mention further than that Susan first found it out, and by adding one-half rain-water with it, and giving it alternately with clean water, it had a surprising effect on her plant. This rich watering causes the geraniums to grow on and flower much longer than is usually the case, especially those plants that are encouraged with soapsuds to make all their growth first.

After the plants have done flowering in the summer, aunt Harriet is never in a hurry to prune them, or cut them down; she merely turns them out of doors to

recover themselves after the hard labour of producing so many flowers in succession. She has learned by experience, that if cut down when in this exhausted condition, the next shoots come up very irregularly, so that some are very strong, while the greater part are weak puny things, which flower weakly, and prevent the possibility of forming a regular bushy head to the plant. As soon as the geraniums are turned out, all strong water is withheld, and no more rain-water is given than will keep the leaves from drooping, so that the plants get over their exhaustion in a natural way without any stimulus. After a while they are quite recovered, and even under this scanty nourishment they begin to grow away freely at the top. Now this is the precise moment to cut them down; their blood or sap being now in active motion all over the plant, when they are cut at this stage, all the young shoots come up vigorously, and issue forth almost at the same moment. Another advantage results from this practice:—by leaving her plants unpruned till they renew their strength, the growing season is so far spent that the young shoots come up slowly and short-jointed, so that they are not more than a few inches long by the end of October, which is the time she begins to keep them drier for the winter. In this state they are easier to keep through the winter than if they were long lanky plants, as we often see in windows. As soon as the plants are ready to cut down, she first lets them get dry enough to cause the leaves to droop, that prevents them from “bleeding,” as we say when a plant loses the sap when cut; and she also withholds water from the cut plants for two or three days, to enable the wounds to dry more readily. There is no one in the parish, I believe, who cuts down geraniums so closely as your aunt, and that is one main cause why her plants always look so bushy. She cuts all the branches down to within three inches of where they began growing from the older wood, and if she meets with a weak or very small branch, which, however, is seldom the case, she cuts that down to the last bud, so that it can only produce one shoot for next season; that causes it to grow as strong as the others, as generally there are three or four branches allowed to grow from the stronger shoots.

Now, after the plants are thus cut, they are slightly watered for ten days or a fortnight, or till the young shoots have three or four leaves each, or, say, are about an inch long, and then comes the great annual revolution of shaking away the whole of the soil from the roots. If you had called at her cottage just at that time, and found her at this employment, without being aware that this process was ever resorted to by any one before, you might well feel alarmed about the state of her mind. But there she is, taking one pot after another, shaking out the soil, and even cutting all the larger roots to from four, five, or six inches from where they first issued, as coolly as I am writing about it. When the roots of geraniums are thus cut, the stumps that are left will push out many young roots from their sides, and instead of one old large root, she will get half a dozen young healthy ones, that will suck up a much greater share of nourishment; and so they would need, seeing that next year there will be so many more branches to be supplied with food. The large roots being thus shortened, and the small ones trimmed in a little, the plant is immediately re-potted; but the branches being cut so close in, you may be sure it does not require so much feeding as when in full beauty; so to accommodate the plant in this respect, it is put into a very small pot, just large enough to hold the roots without being doubled or cramped in any way. Although aunt

Harriet uses richer mould than any of her neighbours for her geraniums at this potting, she mixes a portion of sand with it, to make it more loose, which will enable the young-formed roots to pass through and among it more freely. The proportion of sand may be about one-eighth, sometimes more and sometimes less, according to the texture of the mould.

No one is more particular about the drainage of pots than your aunt. She learned the proper use of drainage many years since by sad experience, having then lost a beautiful young plant by the soil getting soddened,—the oyster-shell having got choked up round the edges with the loose mould. Potting-day was a busy day with Susan; she had to carry the pots, mix the mould, break the crocks, and arrange them very regularly in the bottom of the pots; and she always contrived to have some fresh moss at hand on potting-days, to place a thin layer of it over the crocks. She also carried the new potted plants outside, to some level spot, where they got a good watering with a rose watering-pot, to settle the new mould about the roots, and wash the leaves and branches. In the evening, when the pots got dry, and all the superfluous water drained away from them, the plants were taken in-doors and placed in the window, where they made but a sorry appearance for some time in the eyes of strangers; yet aunt Harriet was well satisfied with their condition, and for the first week or ten days after potting, she would order the window to be kept shut, to keep the room close and warm, in order to assist the plants to make new roots, and on very bright days the blind would be drawn down to keep the sun from them in the middle of the day; that is, for the first fortnight after the potting, by which time they were pretty well established in the fresh soil.

Now, with all this care, and with such small pots, the geraniums usually wanted another shift into larger pots in about six weeks, or say late in September. Then pots, crocks, oyster-shells, moss, and rich mould, were all in requisition again; and for this final potting for the season, Susan contrived to have at hand some dry rotten dung, of which she placed a layer over the moss above the drainage. How this rotten dung was procured is one of those mysteries peculiar to the old saying, “where there is a will there is a way.” This potting was more easy to perform than the former one, as nothing was required but to turn the ball of earth, in which the plant was growing, into the new pot, with as much soil under it as raised it nearly level with the rim of the new pot; yet every ball turned out of the pot was criticised as to the extent of the roots—their healthiness, and general appearance: if these were thought favourable, then the plant was put into its flowering-pot at once; if otherwise, a smaller pot was used, with the view of giving the plant another and the final shift in the spring; so that, in fact, the plants were always flowering in the same pots as you said you thought they were. After this potting, the room was again kept more close, to encourage the growth of roots; but by this time the sun was not strong enough to require the blinds to be taken down; and if it was, the plants did not require this time to be screened, as they had plenty of roots. Strong plants like these, being thus early put into the pots they are to flower in, could not fail to give a large crop of flowers, if they are kept very slowly growing, from November to the end of February.

People who have greenhouses can hardly be so indulgent, for want of room, as, if they have a large stock of plants to preserve through the winter, such large pots would take up too much room; they therefore

put them in second-sized pots late in the autumn, and give them the final shift as soon in the spring as they can make room for them, by turning some of the more hardy plants out of the greenhouse into temporary pits, or sheltered corners, where they can be covered at night. I intended to draw up, in one small paragraph, the chief points in this account of aunt Harriet's management; but, on reconsideration, I think it would be much better if you were to do that for yourself—it would help you to recollect it; indeed, any of my letters, in which you see hints suited to your own case, might be sifted in the same way; as once you see the reasons I give for such and such things, all you want to remember are the chief points, or names of plants, dates, &c.

D. BEATON.

THE KITCHEN-GARDEN.

RHUBARB.—The cultivation of this useful and very wholesome vegetable was not much understood or attended to until within these last thirty years. It is true that two or three very poor varieties were to be found in most old mansion gardens, but placed in some corner whence they were never again to be removed until worn out by old age and decayed by piecemeal. In those days it was a rare sight to observe a leaf-stalk of rhubarb larger than one's thumb, and they were too tough to be much sought for. When the lamentably long war which had involved all Europe was brought to a close, enterprising men sprung up who not only commenced improvements in the culture of the soil, but who also began to observe how needful it was to improve the varieties of our fruits and vegetables. Rhubarb was one of the first to be decidedly improved, both in its varieties and culture, so that now it is not at all uncommon to observe leaf-stalks of rhubarb as large as an arm, of many pounds weight, delicious in flavour, and beautiful in colour.

VARIETIES.—Amongst the earliest improved varieties were Buck's Early Red, Elford's Early Red, and Radford's Early Red. The Giant speckled-stalked was the best late variety. Now several still further improved varieties have made their appearance; of those are Myat's Victoria; it is speckled, or more inclined to be green stalked; and if not the best variety down to the present time, yet, considering all its good qualifications, we do not know of any one more excellent. Tobolsk is a very good early variety, but takes more after the above first improved varieties. Myat's Linnæus and Mitchell's Royal Albert are also first-rate modern varieties.

PROPAGATION.—To propagate from roots to get a large stock, the best mode is to take up the old stools early in spring; to pull off all the roots which are found to be free from canker, to place them thickly together, say nine inches or one foot from each other, in a drill, covering them with earth three inches deep. But if only a few select stools or strong roots are required, as for a private family, the stools should be carefully parted with a crown to each. In this manner good rhubarb stalks would be produced the second year after planting, if a good preparation has been made of the soil. If raised from seed, the above would take longer to produce good stalks, for the seedlings would have to be transplanted from the seed bed. The seed of rhubarb should be sown in April, on well prepared pulverized soil. Sow it in drills eighteen inches apart. Great pains should be taken throughout the first season, while observations

can be made in selecting and marking the most superior-looking plants to be taken up the following season for making the plantation.

SOIL AND PLANTING.—Although rhubarb will grow on almost any kind of soil, yet it delights most in a good stapled sandy loam, with abundance of strong manure. Pig, cow, or horse-dung, night-soil, or the sediment of a cesspool or sewer, are not too rich for it, if well incorporated with the soil. The soil should be well trenched and pulverized previously to planting, and each stool or root placed four feet apart each way. The plants must be supplied in the growing season with abundance of strong liquid manure brewed from the piggeries, cow-house, sheep, or deer droppings, butchers' slaughter-house, cesspool, or strong sewer liquid. By this treatment the amount of produce which may be obtained from a few plants is very large. Six plants of an early red, and six of Myat's Victoria, or any other approved variety, are enough to supply a tolerably large family from March to July; and if a few roots are commenced forcing the end of November, and a succession kept up, abundance of stalks will be produced from Christmas until the roots in the open ground are productive.

PREPARATION OF SOIL.—To commence a rhubarb plantation, if for the early kinds, select a border or other warm situation, and if the soil is not in staple or depth good, it should now be made so, as this is the season to perform it. If it is a stiff tenacious clay, thoroughly drain it; add to it abundance of old brick rubble, or broken rough stones, charcoal rubble, and refuse vegetable matters, sweepings of walks, grass edgings, or rough open turfy soil. To a rod or pole of ground, a one-horse cart-load of good strong manure, of any of the above described which are easiest comeatable, will not be too much. Incorporate it well together, by first well trenching it to the depth of two or three feet, if the subsoil will permit; and then, in suitably frosty or other dry weather, turning back the soil once or twice at least; for rhubarb is a plant that does not suffer much from transplanting, when a good preparation of the soil is made, and all is in good condition. In suitable weather it may be successfully planted at any time from October to the end of March. February and March is our favourite time of planting, provided the soil is then in good condition.

If the soil is of a light sandy or gravelly nature, add a good portion of turfy loam, maiden-loam, marl, or even clay.

If healthy strong roots are obtained, good stalks will be produced the second season from planting, and will be found in their prime the third and fourth seasons. The plan we have adopted for years is to make a fresh preparation for planting a small quantity every year; grubbing up the oldest every winter for forcing; after which they are pulled to pieces to make young plants for successional plantations. Strong prepared liquid manure should be applied in the months of April and May, when the weather is showery.

ROUTINE WORK.—Continue previous directions as respects trenching, wheeling or carting out manure, forking over the already ridged ground during frosty mornings. Attend to the protection of endive, lettuce, parsley, and brocoli coming in, as well as peas and beans which are above ground. Prepare a warm border for radishes; and, if the weather and soil will permit, sow another sowing of early peas and beans. Also secure a few more roots of an early variety of rhubarb for forcing. Asparagus already in cut should be well attended to, admitting air on suitable occa-

sions, and supplying it with tepid weak manure water, with a small portion of salt dissolved in it. Carrots and radishes already up under protection should be duly thinned, choosing a fine day for sifting among them dry earthy dust, applying tepid water of a fine day, and shutting up early. Cucumbers and melons should be sown in succession, and fermenting materials got together and well wrought, for a succession of beds, where depending on such materials.

JAMES BARNES.

HINTS FROM OUR CONTEMPORARIES.

FLOWER BORDERS.—Wheel manure on to the borders during frosty weather. The best of all composts for this purpose is a mixture of charred rubbish, decayed leaves, and the bottom of old wood-stacks; for fertilizers containing much ammonia, such as stable-dung, are too stimulating for plants required to be of compact growth, and more productive of flowers than leaves.

OUR NATIVE FLOWERS.—Perhaps no one of our readers would dissent from the proposition, that beauty, not rarity, is the first quality to be desired in the tenants of our parterres; and for ourselves, we have no hesitation in saying, that that gardener should not have the direction of our flower-borders who rejected the beautiful, because it was common, to make room for the more insignificant, merely because it was scarce. No, we prefer, before all other considerations, beauty of colour, beauty of form, and excellence of fragrance. Moreover, we are not of those who admire most that which costs most; but, on the contrary, we should be best delighted to save every guinea we could from being expended upon the tenants of our outdoor departments, in order that we might have that guinea to spare upon our stove and greenhouse, the denizens in which must, beyond escape, be excellent, in proportion to their costliness. We make these observations, because we happen to know that effects the most beautiful may be obtained by the aid of our native plants; we have seen rustic seats looking gay, yet refreshing, from their profuse clothing of our *vincet minor* and *major*, and we will venture to wager a Persian melon against a pompon, that half the amateur gardeners of England would not recognise these flowers in their cultivated dwelling-place. Again, if any one wishes to have the soil beneath his shrubberies glad-some in early spring, let him introduce that pretty page-like flower, the wood-anemone, to wave and flourish over the primroses and violets. Let him have there, also, and in his borders too, the blue and the white forget-me-not, *Myosotis palustris* and *M. alba*. We will venture the same wager, that not a tithe of our readers ever saw that last-named gay little native. Mr. Paxton's observation applies to them both when he says, as a border flower it has very high characteristics; it only requires planting in a moist soil, slightly sheltered and shaded, to become a truly brilliant object; it is equally good for forcing, very valuable for bouquets, and alike fit for windows, green-houses, borders, and beds. Under favourable cultivation its blossoms increase in size nearly one half. The plants only require to be divided annually, and to have the flower-spikes cut off as the lower flowrets decay. By thus preventing their seeding, a very protracted display of bloom is obtained. These are not a hundredth part of the native flowers which might be introduced with happiest effect into our gardens. We have seen the broom, the honeysuckle, and the holly, blended with rarer shrubs, and aiding the

best conceptions of the landscape gardener; and we have seen garlands of flowers, in which not one exotic was interwoven, so beautiful, that none culled from our choicest stove plants could have much excelled them.—*Gardeners' Almanack*.

POTATO DISEASE.—The general failure of the potato crop in the neighbourhood of Kenchester and Bishopstone, in this county (Hereford), is pretty well known; but there is one most remarkable exception, which is worthy of record. Amidst the most universal wreck, the crop on the Bunhill estate has been gathered entirely in a sound state. The same was the case last year. It does not appear that any peculiar culture was resorted to to obtain this result, the usual method being adopted. An instance of the same kind has been communicated to us by Mr. Saunders, nurseryman, of Abergavenny, as having occurred at Necton Hall, Norfolk. Lieut. Col. Mason, in a letter to Mr. Saunders, says, "Amidst all the wreck of potato grounds, I am happy to say, as an amateur cultivator in farming, I have secured in winter heaps sixteen acres of sound potatoes. I wish I could add that it was the result of some particular culture or soil; but the seed was ploughed in just the same as a great breadth elsewhere, and it is a solitary instance of success in the same quality of land in which the scourge had made ravages in other places."—*Hereford Times*.

TO CORRESPONDENTS.

PLANTS FOR THE MARGIN OF A POND (T. T.).—Your pond might be elegantly concealed by procuring a quantity of peat, and forming a bank all round it. This soil will be proper to plant with rhododendrons, the taller-growing kinds, such as *R. Ponticum*, *R. Catawbiense*, *R. Nobleanum*, and *R. Alta Clereuse*, at the back; and *R. Ferruginum*, *R. Hirsutum*, and *R. Hybridum*, in front. You might, for variety, plant also *Berberis Aquifolium* and a few dwarf roses; or, if you like it better, the pond might very conveniently be hid with rock-work,—ample directions to form which you will find in the fifth Number of this work.

SEEDS OF ANNUALS (Subscriber, Loughton).—If you will send a list of your seeds, we will give you the desired information. There is no hurry, as at this season very few seeds can be prudently sown in the open air, or even in pots. Perhaps the list in our last Number may have given you the information you require.

CLIMBERS FOR A SOUTH-EAST WALL (H. Mortlock).—The following hardy climbers will suit you to plant against your house with a south-easterly aspect:—*Bignonia Radicans Major* (Orange Trumpet-flower), *Jasminum Officinale* (Common White Jessamine), *Crataegus Pyracantha* (Evergreen Thora), white flower, scarlet berries, *Lonicera Flexuosa* (Twining Honeysuckle), nearly evergreen, orange flowers, *Wistaria Sinensis* (Chinese Wistaria), purple, *Magnolia Grandiflora* var. *Exmouthii* (Lord Exmouth's Magnolia), cream-coloured. The above are sufficient to cover a pretty large house. A few climbing-roses might be added to run in among them. See also "The Flower-Garden," at p. 149 of this Number.

GLASS FOR VINERY (W. B.).—We do not think that the pale green glass, employed for glazing the new palm-house at Kew, can be obtained unless specially ordered. It is manufactured by Messrs. Chance, whose office, we believe, is at Birmingham. We should not employ this if we were about to glaze a new house, but should use rough glass, which is stronger, does not intercept any of the rays of light, prevents scorching, and is cheaper. It may be obtained of any of the dealers in horticultural glass.

RASPBERRIES (A. Atkinson).—The directions for pruning raspberries, given at p. 8 of No. 1, are applicable to any of the varieties. Sawdust, when decayed, is a good manure for raspberries, or for any other garden plant. We will inquire of our gardening friends as to the differences of times for sowing in the south and north of England.

FILBERTS AND COB-NUTS (A Subscriber).—We will give some directions for their culture. The space you allude to was not sufficient, and will by degrees be occupied with other subjects.

CANKER IN APPLE AND PEAR-TREES (M. R.).—The causes of this disease appear to be various. Old age, unripened wood, and unfavourable soil, each give rise to canker. If you will inform us what are the varieties affected, and the nature of the soil and subsoil on which they grow, we will enter more fully upon the question.

WEEKLY CALENDAR.

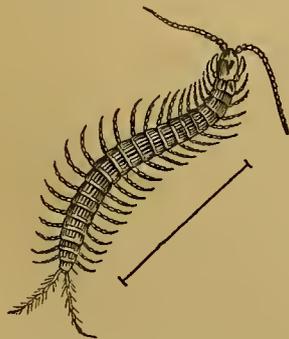
M D	W D	JANUARY 11—17, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
11	TH	Hilary T. begins. Common Bunting sings.	This-year's Moss	5 a 8	12 a 4	7 49	17	8 19	11
12	F	Honeysuckle Leaves open.	Hygrometrical Moss	4	13	8 59	18	8 42	12
13	S	Hilary. Camb. Term beg. Furze flowers.	Yew Tree	3	15	10 7	19	9 5	13
14	SUN	2 SUN. A. EPIP. Long-tailed Pocher goes.	Barren Strawberry	3	16	11 15	20	9 27	14
15	M	Oxford T. begins. Marsh Titmouse sings.	Ivy	2	18	morn.	21	9 48	15
16	TU	Horticultural & Linn. Societies' Meetings.	Common Dead Nettle	1	20	0 20	22	10 9	16
17	W	Hedge Accentor sings.	Garden Anemone	7	21	1 23	23	10 29	17

HILARY was a native of Poitiers, in France, and eventually became Bishop of that place. He lived distinguished for his learning and piety, and died on the 13th of this month, in the year 365.

PHENOMENA OF THE SEASON.—During this month usually occurs the lowest degrees of cold that we have to endure during the year. The "Great Frosts" of England have always either begun or extended over a part of this month; nor does this prevail in England only, but throughout the northern hemisphere. From the North Pole, and over the whole of this portion of the globe, the old proverb is illustrated, which tells us that "January will freeze the pot upon the fire." The great frosts of 1788, 1796, and 1814, all began, or were at their greatest intensity, during this month; freezing over the Thames and other rivers, so that fairs were actually held upon them. During these frosts, which lasted four or more weeks each, the thermometer was frequently as low as 7° of Fahrenheit's thermometer, being 25° below that at which water freezes. It was on the 11th of this month, in 1820, that Captain Parry observed the greatest degree of cold during his voyage to the North Pole. It was, on that day, *forty-nine degrees below zero*; that is, it was *eighty-one degrees below the freezing point of water!* Every one has suffered by having bottles and pitchers cracked by their contents freezing, but very few persons are aware of the cause,—viz., that water, unlike any

other liquid, swells in becoming solid. This is a wise and kind provision of God; for if, in freezing, water became more compact and heavier, the ice would sink to the bottom of our ponds and rivers,—and there, never thawing, the whole of the northern and temperate parts of the globe would become, in the course of a few years, as cold, and even more dreary, than the snow tracts inhabited by the Esquimaux. The force with which water expands, or swells, in freezing, has been shewn by filling with it hollow balls or shells of iron, and then freezing them. The shells were split.

INSECTS.—We have this week to offer a warning in defence and on behalf of another insect, and we do so with more alacrity, because we have in most of our past comments, and shall have still more frequently in those that are in prospect, to condemn and direct war against our insect foes. Now being the time when vacant ground is trenched, and as during next month ground will again have to be levelled and dug, the garden Centipede (*Cryptops hortensis*—*Scolopendra* of some Entomologists) will be frequently observed, and actively endeavouring to twist again into an underground concealment. Never kill one intentionally; for, as their jaws plainly shew, they are carnivorous (flesh-eating), living upon worms and other insects they find in the soil. Mr. Sheppard once saw a centipede attack a worm ten times its own size, round which it twisted like a



JAN.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
11	Fine.	Frosty.	Fine.	Cloudy.	Rain.	Showery.	Frosty.	Cloudy.
Highest & lowest temp.	39°—33°	34°—30°	40°—31°	46°—30°	51°—44°	42°—32°	34°—21°	37°—24°
12	Fine.	Fine.	Frost.	Rain.	Rain.	Cloudy.	Cloudy.	Cloudy.
	39°—22°	36°—24°	43°—23°	44°—35°	47°—32°	36°—31°	36°—27°	44°—29°
13	Showery.	Snow.	Stormy.	Showery.	Cloudy.	Fine.	Frosty.	Cloudy.
	38°—32°	33°—29°	46°—37°	44°—35°	51°—30°	48°—35°	38°—21°	42°—39°
14	Snow.	Fine.	Cloudy.	Cloudy.	Showery.	Fine.	Frost.	Showery.
	36°—32°	36°—22°	39°—28°	40°—26°	50°—35°	50°—37°	35°—19°	45°—36°
15	Showery.	Frosty.	Fine.	Frosty.	Showery.	Fine.	Frosty.	Fine.
	39°—31°	39°—20°	40°—26°	40°—20°	50°—30°	49°—36°	36°—21°	42°—20°
16	Showery.	Showery.	Fine.	Fine.	Cloudy.	Cloudy.	Cloudy.	Frost.
	52°—40°	42°—31°	41°—30°	39°—32°	48°—32°	51°—40°	36°—27°	38°—28°
17	Cloudy.	Fine.	Fine.	Cloudy.	Cloudy.	Showery.	Cloudy.	Rain.
	52°—45°	43°—22°	42°—37°	45°—39°	42°—37°	51°—36°	31°—28°	44°—29°

serpent, finally conquering and eating it. This species (*C. hortensis*) is found in Devonshire, and other southern counties of England. Colour, rusty brick red; antennae (horns) hairy, and seventeen jointed; eyes indistinct; legs hairy, and twenty-one on each side. There are several species, very like this, and all of them are friendly rather than injurious to the gardener. They are provided, says Dr. Carpenter, in his "Zoology," not merely with a pair of horny jaws, but with a pair of strong sharp claws, formed by an enlargement of the second pair of legs, and having at the top a small hole, through which a venomous fluid is probably poured into the wounds made by them. Small insects seized in these claws are seen to die very speedily.

THE most neglected of all the valuable manures available to every householder, is Soor. In most cases the chimney-sweeper is allowed to carry it away, rather than that he shall have a few more pence given to him for leaving the black treasure behind—for treasure it is, and its value is shewn by the fact that the sweep has to be paid for leaving it, instead of for taking upon himself the trouble of removing it. The reason for this is, that the farmer knows well the value of soot as a top-dressing, even for his wheat; though applying it on the surface is the most wasteful of all modes of adding it to the soil. The value of soot, as a manure, principally arises from the salts of ammonia which it contains; and a large portion of these are lost by exposing it

to the sun and wind. The best time for applying soot as a top-dressing is during rainy weather, for the rain washes the ammoniacal salts into the soil before the sun and wind can drive them off.

Soot is that part of common coal which is driven off by the heat of the fire without being burnt; and, as the air which bears it along is cooled, it is deposited on the sides of the chimney. Soot is composed, therefore, of the most volatile parts of the coal, and of some of its most solid parts in a state of very fine division. It has been analysed, and 1000 pounds found to be composed as follows:—

Charcoal (very fine)	371 lbs.
Salts of Ammonia	426 "
„ Potash and Soda.....	24 "

Oxide (or rust) of Iron	50 lbs.
Silica (finty sand very fine)	65 "
Alumina (pure clay very fine)	31 "
Sulphate of Lime (Gypsum or plaster of Paris)	31 "
Magnesia (Carbonate of)	2 "
	—————
	1000 "

Now every one of the above constituents of soot are constituents also of our garden plants. The charcoal buried in the soil is gradually converted into carbonic acid gas, and in that form is sucked in both by the roots and leaves of plants; and all the other constituents are more or less soluble in rain-water, and, consequently, are also taken in by the roots as food for their parent plants.

Having thus shewn that soot might be recommended confidently as a valuable manure, even from a mere knowledge of the substances it contains, let us now see what practical men say, who have tried it in their gardens.

Strawberries.—Mr. Cuthill, of Denmark-hill, Camberwell, who grows this fruit extensively in pots, puts a large handful of soot over the crock at the bottom of every pot. The roots of the plants, he says, delight in it, and it keeps out worms. He entertains a very high opinion of soot as a manure for all plants, thinking it both beneficial to them as a food, and as a protection against insects. He uses it largely as a manure for *Tulips*, *Carnations*, *Potatoes*, and, indeed, to *all his crops*, with the most marked success.

Potatoes.—So beneficial has soot been found, when dug into the ground at the time of planting, by Mr. Barnes, Mr. Morton, and others, that some persons have been so sanguine as to think it a preventive of the potato murrain. Although we do not entertain this opinion, yet we know it to be a capital manure for the potato. On a light soil, without any manure, the late Rev. E. Cartwright grew 157 bushels of potatoes per acre; but an acre of the same soil, manured at the time of planting with 30 bushels of soot, produced 192 bushels of potatoes; and another acre, similarly manured with 30 bushels of soot and eight bushels of common salt, produced 240 bushels.

The grass of *lawns* dressed in April, by sowing over them in rainy weather one bushel of soot to every seven square rods, we have seen increased in closeness and fineness of growth. But we think soot too valuable to be employed for that purpose.

Liquid manure made of soot and water has been found by Mr. Barnes, and other gardeners, an excellent mode of employing it. One writer says, "My manure is soot mixed with water, in the proportion of one table-spoonful of soot to a quart of water, for *plants in pots*; but, for *asparagus*, *peas*, &c., I use six quarts of soot to a hogshead of water. It must never be applied to plants while they are in a state of rest. It succeeds admirably with bulbs, and has benefitted every plant to which I have applied it."

Pine apples, though not within our province, we may notice are manured with soot, and most beneficially, by Mr. Fleming, at Trentham Hall; Mr. Barnes, at Bicton; and Mr. Alexander, at Carlton-gardens.

Carrots are much benefitted by soot; for, if well mixed with the soil, it not only increases their size, but protects them from the carrot grub. The late Mr. G. Sinclair, gardener to the Duke of Bedford, found that an unmanured soil, which produced only 23 tons of carrots per acre, produced 40 tons when manured with 6½ bushels of soot, mixed with 6½ bushels of salt.

Onions are benefitted by the application of soot, more, perhaps, than by any other manure. At the time of sowing, sprinkle soot thickly along the bottom of the drill, and stir it gently in with the corner of the hoe before putting in the seed. It will improve the growth of the onions, and save them from the grub of the onion fly. After losing the plants of three sowings from the attacks of this pest, Mr. Mosely, of Rolleston Hall, at length put it to flight by watering the bed with the following mixture:—twenty gallons of rain water, one peck of lime in lumps, half a peck of soot, two gallons of urine, one pound of soft-soap, and one pound of flowers of sulphur. This mixture was poured upon the bed, so soon as it had settled sufficiently to pass through the rose of a watering-pot.

Garlic and *Shallots*, when planted, should have only the root ends of their bulbs just buried in the soil; and, at the spot where each is thus put in, about a dessert spoonful of soot should be sprinkled previously. This saves them from the attack of the grub, as well as from the decay to which they are subject.

Quantity per acre.—Twenty bushels per acre is the smallest quantity that can be applied alone with much benefit, and twice that quantity is still more advantageous. The best time for applying it is at the time of sowing or planting a crop; or by pointing it in about the roots of plants in the spring, when they begin to grow.

THE FRUIT-GARDEN.

PLANTING.—The arrival of the new year will remind those of our readers who contemplate fresh arrangements in their fruit-garden, that delays are dangerous; and that whatever business of the kind has become necessary, must be proceeded with immediately. Planting operations may be safely performed up to the middle of March, at which period let all be completed. We shall, therefore, be only performing a duty in endeavouring, in the intervening period, to throw out a few brief hints connected with the culture of fruit-trees in general, as a basis on which to found future operations; feeling anxious to give as many useful hints previously as possible, to guide the inexperienced in making a selection.

One thing must be premised—and that is, that the space and period allotted will not permit us to go so fully into the matter as could be desired. We shall, therefore, treat of rudimentary matters chiefly; the rest of the ground can be gone over as occasions offer.

PLUMS.—We will now proceed to take a glance at the various plums in cultivation. It is evident that some of them, like apples and pears, or, indeed, like most other fruits, are so gross in their ordinary growth as to render them unmanageable on walls or trellises, unless some peculiar root-control be exercised. Again, some are naturally of slender growth, and almost unfit to bear their own weight. Some shew a strong disposition to bear on the last year's wood; others produce chiefly on the old spurs. Now the very first thing in fruit culture is so to classify them in the mind's eye, as to see at once that systems of culture must vary as their habits vary. This, indeed, is one of the chief secrets of success.

SOIL.—A good sound yet mellow loam will suit the majority of plums. Nevertheless, there must be something more than the mere matter of soil which affects them, for we find the damson thriving in our north-western counties on clayey soils, on sandy loams, and

even on peats, provided such are properly drained. From such facts, we have long since been persuaded that the amount of moisture in the atmosphere has something to do with the question. However, be that as it may, some pains must be taken where the soil is of a very inferior character.

As before observed, with regard to pears, peaches, &c., in regard of the propriety of so preparing the soil as that they may be brought into early bearing, and not make a superfluity of young shoots, it is indeed expedient to make what we have termed "stations" for them.

Stocks.—On the above head we need say no more at present than that the same kind of soil which suits the peach will suit the plum; for the question necessarily resolves itself into one of stocks. Our peaches in the main are budded on the ordinary Muscle Plum stock: so are many of our plums. However, the "Brussels stock" is much used, we believe, in nurseries, for the plum; and, for a dwarfing system, we think that it is assuredly too gross.

We will now proceed to give a select list of plums adapted to the amateur and the cottager; merely observing that we are not hunting for novelty, but merely endeavouring to point to really good and profitable kinds, whether new or old. We will place them in the order of their ripening.

1. *Preeoce de Tours*. (T. K. *)—July. An oval purple plum, of medium size and very good flavour. We have a tree of this kind on an eastern aspect, which has borne a full crop for the last twelve years. The fruit is very handsome, and will continue in succession for nearly three weeks.
2. *Morocco*. (T.)—Beginning of August. A small round purple fruit, of great merit. This is also one of the surest bearers in the whole list; we have it on an east aspect.
3. *Orleans*. (K. and T.)—August. Round and purple; middle-sized. This is one of the greatest bearers in the list, and is much grown by market-gardeners as an ordinary standard.
4. *Drap d'Or*. (T.)—August. A fine rich fruit of the greengage flavour. Fruit rather small, round, and yellowish. Should have a wall.
5. *Greengage*.—August and September. Too well known to need description. No collection is complete without this kind, which is best on the wall.
6. *Royale Hative*. (T.)—September. Round and of a purple colour; fruit middle-sized. Very rich; should have a wall.
7. *Reine Claude Violette*. (T.)—September. A round purple plum, of great excellence; middle-sized. A very high flavoured fruit, deserving of extensive cultivation. Would succeed as a standard in most of our counties.
8. *Coë's Golden Drop*. (T. K.)—September. A large oval fruit, of a golden colour, frequently mottled with brown spots. This is a most valuable fruit, its only fault being its attractive character. This plum is so rich, that like the Bigorreau cherry, it is preserved from the wasps and flies with great difficulty. A good bearer, and succeeds well as a standard.
9. *St. Martin's Quetsche*. (T.)—End of September. A yellowish fruit, not at present much known. A very valuable variety on account of its flavour, its bearing properties, and also its power of remaining long on the tree. Will answer as a standard.
10. *Washington*. (T.)—September. Of American

origin. Very large, oval, and of a yellowish cast. Flavour good, but not remarkable. Will answer well as an ordinary standard.

11. *Jefferson*. (T.)—September. Another American plum, very large indeed. It is highly spoken of, but for very limited gardens had better receive farther proof.
12. *Wine Sour*. (P.)—September. Roundish and of a purple colour; a great bearer as an ordinary standard. Well known as a good preserving plum.
13. *Magnum Bonum*. (K.)—September. There are two varieties, the red and yellow. Well known as large fruit for kitchen use. They make a very excellent jam. Do best as standards.
14. *Saint Catherine*. (K. and P.)—September. Whitish and of a small size. A well known preserving fruit; also a good bearer.
15. *Ickworth Imperatrice*. (K. and P.)—October. A good-sized flattened purple fruit. Very valuable for its long keeping, if carefully gathered, and kept in a dry room.

We much fear we have now gone too far with the list to be useful to the generality of our readers. We will, however, give a classification of them, in order to guide the inexperienced.

As ordinary standards adapted to very small gardens, and as being great bearers, we would point to Nos. 2, 3, 7, 8, 9, 12.

As first-rate wall-fruit for table, adapted to very small gardens—Nos. 1, 3, 5, 6, 7, 15.

It may be here remarked that Nos. 10, 11, 13, being of the class termed "egg plums," are very gross in habit. For a dwarfing system, therefore, their soil should by no means be rich. Root-pruning should, also, occasionally be practised.

We have much, very much, more to say about the plum; and for the sake of hastening to other matters which press, we must defer farther observations for a while. In the meantime, enough has been said to guide both the amateur and the cottager as to the nucleus of a selection. There are, as we are aware, many new plums in the market, and some, doubtless, will prove good; but, as we before observed, we dare not rest on novelty alone. It is far better, with regard to those for whom our labours are intended, to be very particular in selection; and rather to seek improved modes of cultivation than more extensive collections.

PEACHES, DRESSING FOR.—We promised to give a recipe for dressing the wood of peaches, and are now proud to do so. There are other mixtures in use, and, perhaps, they are excellent. Our purpose is, however, to give what we have proved to be one perfectly successful, for at least the last fifteen years. During that period, we have found three distinct dressings to be all that is required during the year, in order to secure (as far as applications of this kind go) the health of the trees. One dressing is applied immediately after pruning, and before the trees are nailed. A second is used immediately the trees are out of blossom; this is a sulphur mixture, to guard through the summer against the ravages of the red spider. A third is to destroy the aphides (plant lice), and is applied when the young shoots are unfolding themselves. Of the latter two we shall speak at the proper period: we have now to describe the first.

Beat up four ounces of soft-soap in a gallon of warm water; add one pound of flowers of sulphur; beat up some good clay into a complete mud, and thicken the whole to the consistence of a stout paint with the latter; finally, add two quarts of fresh slaked

* The following abbreviations are used:—K, for kitchen use; T, table; and P, preserving.

lime. Let the whole be well mixed, and daub every particle of the shoots with it. The best thing to apply it with is an ordinary painter's brush. When the mixture is thoroughly dry, the railing may be proceeded with.

FRUIT-TREE STOCKS.—It is well for the amateur and cottager to graft and bud many of their choice fruits. To the amateur it is interesting; to the cottager it is a matter of economy as well. Besides, as we before observed, in regard of apples, every opportunity should be taken of grafting kinds from the immediate neighbourhood, which have been long proved as suitable to the character of the soil as well as the situation. This is a safer proceeding, on the whole, than trusting to the nursery kinds, many of which, although, perhaps, excellent in some situations, will not thrive in all. We have known abundance of baking apples—seedlings, probably, which originated in the very neighbourhood, and which had never been cultivated a score of miles beyond the spot where they were raised—quite equal to anything in the nurseryman's catalogue. These have, frequently, names indicative of their origin; as, the pigot apple, the pump apple, &c. &c. Let the amateur, therefore, as well as the cottager, set apart a small portion of ground for fruit stocks, and, as it is time to think about procuring them, we will give a list. We will suppose enough to begin a system of the kind on about three-quarters of an acre of ground.

- 20 Crab Stocks; for apples of delicate growth, and very fine bearers.
- 20 Paradise Stocks; for strong sorts of apples, and especially for a dwarfing plan.
- 30 Muscote Stocks; for plums, peaches, and nectarines.
- 10 Commoner Stocks; for apricots.
- 12 Pear Stocks; for great bearers, and where size is required.
- 12 Quince Stocks; for a dwarfing plan.

These things may be obtained exceedingly cheap; a couple of shillings would purchase the whole, with the exception of the quince, which is the most expensive. The cottager may leave out the peach, the nectarine, and the apricot stocks; and, indeed, the quantities of each may be altered according to the extent of the garden.

Let a plot be prepared for them on a sound piece of ground, free from water lodgments; let it be well manured, the manure by no means dug in deep; keep it near the surface in order to encourage fibrous roots. They may be placed in rows two feet apart, and one foot between plant and plant. Let all roots of a descending character be pruned away before planting, and let every precaution be taken to keep the small fibres damp, from the moment they are removed until finally planted.

ROUTINE-WORK.—Let all bush-fruit pruning be completed soon. Proceed also with apple pruning, and indeed pears and plums, where the future blossoms can be well distinguished. Cottagers, if thrown out of work for a week or two, may collect turfy matters, and trench as much ground as possible. Every cottager should learn to make baskets; nothing can be easier. It assuredly is a great benefit. We will speak of willow cultivation shortly.

R. ERRINGTON.

THE FLOWER-GARDEN.

THE New Year has now opened upon us, with its cheering influences of hope and pleasant anticipations. We look forward to enjoying the fruits of our forethought, preparations, and conservative cares.

We can look back with pleasure also, provided nothing in our power to do, or within the reach of our means, has been neglected or omitted. Circumstances, however, may have occurred to cause us unavoidably to have left undone some things that ought to have been done, therefore we will very briefly look back upon what we proposed doing in the flower-garden, and so make a fair start to begin the year, with a firm resolution to bring up the work to the present time.

RETROSPECTION.—SOILS.—Provide different sorts of soils: these are absolutely necessary. Lose no time in procuring them, if not already done. (See No. 1.)

PERENNIALS.—In procuring these, no time must now be lost, or they will not flower finely next season.

BULBS.—Some few bulbs may yet be planted, such as Japan and other lilies, Anemones, and Gladiolus or Corn-flag. (No. 2.)

FORCING VIOLETS may still be done, also Lily of the Valley. Roses may also yet be planted. (No. 3.)

EVERGREENS IN POTS.—Place in vacant flower-beds. It is not by any means too late for this operation.

FORCING ROSES may yet be commenced. Indeed, this is a work of succession: the first lot ought now to be in bud, and should have every attention paid to them. (No. 4.)

THE ALPINERY, or artificial rock-work, if not begun or finished, should be forwarded by all means now, to have time to settle previously to planting in early spring. Cottagers to make **TURF-PITS**, and form an arched trellis. (No. 5.)

SHRUBBERIES may yet be planted or renovated; and, for **AMERICAN SHRUBS**, the beds may be made with sandy peat, very conveniently, during frosty weather. Boards or straw should be laid upon the grass, to save it from injury by the barrow-wheel.—**ROSES** may be planted yet, and now is the best time for pruning them. (No. 6.)

PROPAGATION OF ROSES.—In pruning roses, there will be a good supply of cuttings. (No. 7.)

PROTECTIVE FENCES.—The ground where these are to be planted may yet be trenched, ditches formed, and the thorns or hollies planted, either entirely separate or mixed. (No. 8.)

ORNAMENTAL FENCES.—Should the weather continue mild, these fences may be planted during this month and the next. **ALPINE PLANTS** may be put into their blooming-pots, either now or later. (No. 9.)

FERNERY.—A rocky, boggy, and shady place, to cultivate hardy ferns. The materials for this purpose, and the putting them into form, may be done any time between this and March; but the sooner it is done the better, for the same reason as given for the Alpinery—that it may have time to settle.

ROSES may yet be put in pots, but will scarcely bear forcing at all this year. (No. 10.)

FERNS IN POTS.—Where you have not a convenient place to form rock-work, you may grow these elegantly-pretty plants in pots.

PRUNING SHRUBBERIES should now be finished without delay. (No. 11.)

VARIEGATED PLANTS are mentioned, and a list given, together with a **COMPOST FOR CARNATIONS**; to both of which we now direct your attention. (No. 12.)

And, lastly, in the 13th Number, we have described **WARDIAN CASES**, their culture, and a list of plants suitable for them. We trust these retrospective hints will be useful, and spur on our amateur and

cotter friends to use every exertion to make their flower-garden or flower-border highly ornamental and delightful to themselves, their families, and their friends.

FLORISTS' FLOWERS.

ANEMONES.—The bed intended for the finest double ones ought to be now in a forward state. It should be turned over for the last time any favourable day during the early part of the month. The commoner kinds, planted in November, should have the surface of the beds or clumps stirred gently with a short three-pronged fork, on such fine days as we have been favoured with lately.

AURICULAS must have the care and attention necessary for keeping them in health and vigour. Air, cleanliness, and water must be given in suitable proportions and quantity. (See page 25).

CARNATIONS AND PICOTEES.—At this season of the year these plants require very little care. They may be watered occasionally in mild weather, and have abundance of air on all fine days. As they are perfectly hardy, very little protection beyond the glass covers for the frames is requisite: they are more likely to suffer from damp and mildew than from frost; but in very severe frost let them be covered with double mats, well fastened down, to prevent the sharp winds blowing them off.

DAHLIAS.—Look over your stores of these fine autumnal flowers. Remove all decaying stems or rotten roots from them. Damp, wet, and frost, are the great enemies to guard against. A little care now may prevent much loss and disappointment in the spring. Should any of the roots be found wet or damp, expose them for a few days to a dry, warm atmosphere, to dry them. Late struck ones, in pots, must be kept dry, and secure from frost.

PINKS.—Of all the flowers usually named *florists'*, this family is the most suitable for an amateur or cottager. Their beauty is quite equal to any, their fragrance is very superior, and they are more hardy and more easily propagated than most others. All these considerations recommend them to our especial notice. We propose, in an early number, to devote a considerable space to their culture, and to a list of the best sorts at present in cultivation. At this season they are planted out in the bed or beds for blooming, excepting, perhaps, a few of the very choicest, which may, from precaution more than necessity, be kept in pots in the same frame or pit as the carnations. Those in beds, after heavy rains, should have the surface stirred; and, after frosts, the soil pressed firmly with the hand close to the stems. This work should be done when the soil is rather dry.

THE PANSY is also a desirable flower for those persons for whose especial benefit this work is intended. We cannot press too strongly upon our readers the merits of this and the preceding lovely embellishments of the flower-garden or border. The pansy, or heartsease, for it is known by both names, and some other old fashioned ones, is quite as hardy as the pink, and has, perhaps, more beautiful colours, but is deficient of the rich perfume possessed by the pink: not that it is entirely scentless, for some varieties have a very agreeable though faint smell. We have already bestowed some instructions on the cultivation of this favourite, to which, for the present, we refer the reader. (See pages 47 and 77.)

POLYANTHUS.—This is also a lovely family of flowers, not half so much cultivated as they deserve. There is very little difficulty in growing them, as they are perfectly hardy. The only drawback upon

success is, that they are very subject to be attacked by the red spider. The recipe we have given for the destruction of this vermin is a certain one (see page 25). At this season the polyanthus requires to be kept quiet, by being as cool and dry as is just sufficient to keep it alive. With respect to air and shelter, the same treatment as we have directed for the auricula will be proper for the polyanthus.

RANUNCULUS.—The roots of this fine flower will yet be in the bag or drawers. The bed to plant them in should be in a state of readiness. It is a good plan to cast all the soil out on a ridge on each side of the bed; then, upon the drainage, place three or four inches of cow-dung about half rotten: spread this evenly over the bottom, and then throw upon it the soil, leaving it five or six inches above the general level. Let the bed be edged with wood or slate, and hooped over in the same manner as the tulip-bed.

VERBENAS.—These may now be considered as florists' flowers. Numbers of them have been hybridized—that is, the pollen of one variety has been applied to the stigma of another, for the purpose of improving either the size, the form, or the colour of the succeeding generations.* Many beautiful kinds are now in cultivation, and the number increases annually; so much so, indeed, that it is somewhat difficult to make a selection in moderate numbers. Verbenas are very suitable flowers for small gardens.

Where they are grown in borders amongst other flowers, they should be tied up to sticks about eighteen inches high, set in a circle round each plant. By this method the flowers show better, and are not liable to be splashed with soil during heavy showers. The great use of these flowers is to plant in beds in masses of one colour; one kind in each bed. When planted so, they ought to be pegged down with small hooks, till the bed is completely and thickly covered.

THE SOIL should be moderately rich and light. If the situation is low and damp, the beds ought to be drained. The best time for planting out is the beginning or middle of May. By the middle of July, should the season have been favourable, they will be in a blaze of floral beauty, which will last till the cold wet nights of autumn spoil their flowers.

PROPAGATION BY SEED.—The seed should be sown in shallow pots, plunged in a gentle hot-bed, early in March. When the seedlings are three inches high, transplant them, three or four together, into pots four inches wide. Nip off the tops to make them bushy. When the planting season arrives, the seedlings may be planted out also in a bed, in some retired part of the garden. Select the best as they flower, and take cuttings of such as appear good. Number and describe them in a small book, so that you may know how to arrange them the following year.

PROPAGATING BY CUTTINGS will be considered in a future number.

SELECT LIST OF VERBENAS.

BLUE.	PINK.
Duchesse d'Aumale.	Enchantress.
Imperatrice Josephine.	Gem.
Valentin de Saoui.	Lady of the Lake.
Imperial Blue.	Madonna.
CRIMSON.	Vixen.
Atrouanguica.	WHITE.
Due de Nemours.	Mount Blanc.
Emperor of China.	Mountain of Saow.
Merry Monarch.	Princess Helena.
Sir E. Buxton.	White Perfection.
PURPLE.	SCARLET.
Conqueror.	Barkerii.
Heloise.	Defiance (extra fine).
Henry 4th.	Emperor of Scarlets (vivid).
Pourpre Superb.	Diana (very bright).

* *Stigma*, the top of a pistil, or female part of a flower. See p. 115.

Roule de feu.	Miss Sarah, white, pink centre.
Wonder of Scarlets.	Queen of Beauties, pink, red centre.
COLOURS, VARIOUS.	
Captivation, bright rose, scarlet spot.	Reine des Français, pink, with rich crimson centre.
Compte de Paris, rose and blue.	Rose d'Amour (Dufay's) purple, shaded with bronze.
Desirable (Barker's), purple lake.	Saint Margaret, scarlet-crimson, light violet eye, large, and fine form.
Excelsa (Superb), large, deep rose.	Tricolour, pale rose, deep carmine centre.
Lady of the Lake, bright rose pink.	
Madonna, rosy pink, primrose eye.	

Any or all of the above are beautiful varieties, well worthy of cultivation. They are not expensive; any dealer will furnish them at 9s. to 12s. the dozen.

T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

COLD PITS.—The strength and durability of pits and greenhouses, and, indeed, of any kind of building, depend much on the season of the year when they are erected—on the timber being well seasoned, and on the kind and age of the bricks used—the lime being the only part of the materials which should be used in a fresh state. The strength of the mortar depends much on the lime being slacked, and made into mortar immediately afterwards. Late in the spring is the best time of the year to build plant erections of any kind, and particularly so for a cold pit, as then the whole summer season is before it, to dry up and consolidate the work, so as to be in the best possible condition to resist the effects of a long and changeable winter, and to ensure the safety of the plants within it. Stability, light, and ventilation, are the three great essential points in all plant structures; but perfect exemption from damp arising from natural causes, such as low situation, or damp clay foundation, may be said to be no less necessary; for we can always keep a pit or house damp artificially when the plants require it, but to contend against the effects of natural damp in a cold pit is indeed a misfortune. I hope, therefore, to be excused if I speak out freely, and write even too fully on such, seemingly, small matters. Small matters, indeed! They are of the very first importance to those who have to do with them. The timbers should be well seasoned and dried, and be the produce of slow growth, such as the English oak, or the red or true highland pine of Scotland. The latter you cannot procure at present, but that from Norway or Sweden will do as well, provided it is not so green as to exude moisture at the extreme ties, after the weight of the glass is put on them; as I have seen more than once, when a log was taken from the cargo of a Norway trader, sawed and fixed all in the space of a few weeks; or, if it was so dry on the outside as to take on the paint, premature decay and the dry-rot were the sure consequences of this careless way of building—to call it by no harder name. Fresh burnt bricks from the kiln are every whit as bad in their way as green logs from the forest: their heat and powers of absorbing moisture will reduce the best mortar to a dry powder, so that the strength which ought to be acquired from the composition of proper materials is altogether wanting, and the consequence is soon told. In a season or two, the mortar between the joints will have crumbled and given way, so that recourse must be had to the tedious process of "pointing" the joints, which, after all, is a mere blind or makeshift for a few seasons longer. There is a cheap and inferior kind of soft half-burnt brick, called in the trade "place bricks." These spongy bricks are totally un-

fit for our present purpose, or for any building which it is desirable to keep dry. If you intercept the natural dampness of the foundation from them, they will absorb sufficient wet from the atmosphere to defeat our purpose; every beating rain will penetrate into them, and the frost will shatter them to pieces in a few seasons; yet I have seen pits built with this kind of brick because they were sold cheap. The kind of brick called "stocks" are the proper sort for all plant erections; these are well burnt, hard, and sound, and therefore best calculated to resist the weather and keep the inside of the house or pit dry. Fresh burnt stone lime is far superior to that from common chalk; but chalk lime will do very well, if used quite fresh from the kiln, and the joints made with it be as thin as the safe bedding of the bricks will allow. Indeed, the joints in all brickwork ought to be made as thin as possible. Some bricklayers have an awkward way of making large thick seams or joints between the bricks, which, unless the lime is of the very best quality, will crumble away more or less in a few years.

Pits for half hardy plants are best if built on the surface of the ground, not sunk in the ground like cucumber pits. In frosty weather they may be guarded with any kind of litter, and during fine open weather the ventilation is more perfect, and the plants will be less liable to damp off than those in sunk pits. Where small stones or rough gravel can be had, the foundation for pits and greenhouses might easily be made of concrete, which is better and cheaper than brick foundation. Concrete is made with fresh unslacked lime and rough gravel; say, one barrow-load of lime and six barrow-loads of the gravel, mixed up with water much thinner than brick mortar. Fill the foundation trench with this as soon as it is well mixed, and in two or three days, unless the depth of the trench is considerable, the whole will have set as hard and as solid as a rock, and you might build a castle over it. Indeed, castles and all large buildings are now-a-days built on concrete foundations. After getting up the foundation to the surface of the ground, of whatever material it is made, the next proceeding is—or ought to be—to intercept any damp that may rise from the bottom. Plants cannot be kept well if the walls of the pit are naturally damp, as they are sure to be unless the situation is very dry. The usual way of rendering the brickwork dry, is by laying the first course or two above the foundation in cement; if the cement is from a newly opened cask, it will answer the purpose perfectly well; but it often happens that cement for such small jobs is taken from a cask that has been opened some time, some of the contents having been used long since; in which case it is not much better than common lime mortar. The air is well known to destroy the adhesive power of the best cement. Rather than run any risk on so material a point, I would prefer making the walls damp-proof by a layer of thin slate over the foundation, and building the brick-work on that. Common roofing slate is thick enough for the purpose, provided it is bedded solidly on the foundation. I have never seen a copy of the "Building Act," but, unless there is a clause in it to prevent builders erecting houses without a thorough provision against damp rising from the foundations, it does not say much in favour of the sanatory wisdom of our legislators. At any rate, let us have dry structures for our plants, and we can always damp them to our own liking where they require it; and I am certain the easiest and most effectual way of arresting the progress of damp is as I have stated.

All of us have built "castles in the air," but none of them with drier foundations than may thus be made. I would not give bread and cheese to a country labourer who could not make concrete, and fill in the foundation from the foregoing directions, if he could read them.

Then, there is no great art required for common painting and glazing—many an amateur might do that part of the work. Buy a few pounds of the best white lead, and a few quarts of boiled linseed oil, and to every quart of oil add half a pint of "turps," (that is, spirit of turpentine) and you may soon make as good paint as ever was bought; and as to the mere mechanical process of laying it on your frames, it is as simple as sweeping the hearth-stone. Glass also is now made so stout, and cut so true on the edges, that one can put in a hundred squares without using a diamond (that is, the little instrument with which glass is cut). It is rather dear to buy a new one, but I have seen second-hand ones, as good as new, bought at the pawnbroker's under ten shillings, and it is a useful tool for any one having glass to fit or repair. Recollect what I said about two coats of paint before glazing (see p. 120); the first coat they call priming, and is made with red lead and spirits of turpentine—not always, however, but it ought to be: it should be thinner than common paint. Red lead is much stronger than white lead, and putting on this strong coat at first prevents the wood imbibing too much of the oil out of the other coats of paint, and also out of the putty. When the putty is dry enough, after glazing, the best way to paint a light is to place it sideways before you, not flat or standing on one end; then paint the *upper* sides of the bars first, and if there is any flaw or crack either in the putty or between the putty and the glass, it will be more effectually stopped, for the paint will fill it up by its own weight. When the upper sides are finished, pass on to the next light; or, at any rate, do not turn the first light upside down till the paint is a little dry—for if you do, the oil, or thinnest portion of the paint, may run out of these cracks. If I intended to build a pit or a greenhouse next March or April, I would get the woodwork and the glazing finished between that time and the present, and also bargain for autumn-burnt bricks, as it is sometimes difficult to purchase well-seasoned bricks in the spring, when building becomes general; and if you use them hot from the kiln, you may burn your fingers two ways.

The best size for a cold pit is six feet wide; the back wall to be three feet high, and the front wall about two feet. The last course of bricks all round to be set with cement. The extra expense for the cement will be well repaid by the superior strength thus given to the brickwork, which will also be rendered drier and rain-proof. The wall plates should be of red deal, and cut on a bevel to suit the slope of the glass—say, from one and a half to three inches thick on one side, and two inches on the other,—the thick side to be outwards along the back of the pit, and inside in front—to be flush, or even, with the brickwork inside, and to project an inch beyond the brickwork round the outsides to throw off the drip. The lights, or sashes, should slide easily between the rafters; and the simplest contrivance for fixing the lights firmly between the rafters, to prevent the wind blowing them off, is a small stick with a wedge end, to push in between the sides of the sash and rafter; this will keep it as firm as if nailed down. Small iron handles should be fixed to all pit sashes behind, to push them up and down with; indeed, it would be

very convenient to have a handle at each end, as in that case the sash could be moved from either side with equal facility. It is a good plan in winter, whenever a fine dry day occurs, to turn the sashes of all kinds of pits inside out, in order to get the damp on the inside dried up before night, and this is also a simple way of giving air, as the lights, thus turned, do not rest closely on either back or front plate, the projection of the sash bars keeping the sash a little clear off the plates, and allowing a draft of air to pass from front to back. During cold drying winds, it is not desirable to create a draft over plants that have been rendered tender by a long confinement, either in a greenhouse or pit; but whenever the air is mild, draft ventilation is better for the health of indoor plants. This difference in the way of giving air is far more essential than many people suppose, and more so after this time, when plants, by being shut up under glass, have been a long time deprived of part of the scanty light which our northern climate affords in winter.

CALENDAR.—The management of greenhouse and window plants, being so uniform for three or four months during winter, I did not consider it necessary to give a weekly calendar of operations; but have thought the more useful course to be, to give a few essays on the subject in hand. However, we must soon begin to detail what is most necessary to be done in the way of weekly operations.

D. BEATON.

THE KITCHEN-GARDEN.

POTATO FORCING is practised from the close of December to the middle of February, in a hotbed; and at the close of this last month on a warm border, with the temporary shelter of a frame. The hotbed is only required to produce a moderate heat. The earth should be six inches deep, and the sets planted in rows six or eight inches apart, as the tubers or roots are not required to be large. The temperature ought never to sink below 65 degrees at night, nor rise above 80 degrees in the day.

The rank stean arising from fermenting dung is undoubtedly injurious to the roots of potatoes; and to obviate this, they may be planted in narrow beds, and the dung applied in trenches on each side; or all the earth from an old cucumber or other hotbed being removed, and an inch in depth of fresh being added, put on the sets, and cover them with four inches of mould. At the end of five days the sides of the old dung may be cut away in an inward slanting direction, about fifteen inches from the perpendicular, and strong linings of hot dung applied.

If the tubers are desired to be brought to maturity as speedily as possible, instead of being planted in the earth of the bed, each set should be placed in a pot about six inches in diameter, for this checks the growth of the root; but the produce in pots is smaller.

Preparation of Sets for Forcing.—They should be of the Walnut-leaved Kidney variety. To assist their forward vegetation, plant a single potato in each of the pots intended for forcing, during the present month. Place the pots in the ground, and protect them with litter from the frost. This renders the potatoes very excitable by heat; and, consequently, when plunged in a hotbed, they vegetate rapidly and generate tubers. The seed potatoes are equally assisted, and with less trouble, if placed in a cellar just

in contact with each other, and as soon as the shoots are four inches long, are removed to the hotbed.

Management.—More than one stem to each stool should never be allowed, otherwise the tubers are small, and not more numerous. Water must be given whenever the soil appears dry, and in quantities proportionate to the temperature of the air. Linings must be applied to the hotbed as the temperature declines; and air admitted as freely as the temperature of the atmosphere will allow. Coverings must be afforded with the same regard to temperature. From six to seven weeks usually elapse between the time of planting and the fitness of the tubers for use. The average produce from a single light is about five pounds.

ROUTINE WORK.—As a most interesting part of the season is now approaching, every available opportunity must be taken for trenching, ridging, and forking about the soil, to procure a healthy, crumbly state, or tilth, ready for spring sowing and planting, on which so much depends the health of our future crops, and the abundance of their produce. Take advantage of favourable, mild, dry weather, for planting Broad and Long-podded beans, and for sowing the principal crops of early varieties of peas.

SEED LIST CONTINUED. PEAS.—Among the best early are the *Prince Albert*, *Warner's Emperor*, and the *Early Warwick*. None of these varieties grow taller than from four to five feet, and if they are kept topped, that is, if the points of their shoots are picked out when they commence blooming, their average height on good soil will be about four feet. The advantage from topping or stopping their main shoots is, that the pods take the lead, and consequently the gathering of peas is advanced several days. It also causes the stems to throw out branches or side shoots. For those who have room to grow a succession of peas, the *Early Charlton* is good for a second crop, and is much finer and more productive than either of the above early varieties; but, for a cottager, or those who have ground to spare only for one row of peas, the *Scimitar Blue* is the best, both as to the quantity and quality of its produce. Its height on good soil is five feet. *Knight's Tall Marrow* is a pea of the first quality for yielding an abundant crop of fine pods. It requires a rich, deep, mouldy soil; and on such a soil, the quantity of peas of good quality it will produce throughout the heat of summer, from the middle of July till September, is very large, more particularly if over the roots the ground is mulched with half-decayed mulch or leaves, and the roots are occasionally well soaked with liquid manure. It is a pea that requires to be sown thin, one pint being abundance of seed for a row 100 feet long. Whilst growing, the plants should have their tops picked out when about two feet high; and again on several occasions afterwards, if their strength and luxuriance will admit of it, for they will continue to branch in succession, and produce pods, if kept clean gathered as soon as ready, for six or eight weeks, being a longer period than any other variety of pea that we are acquainted with. The *Woodford Green Marrow* and the *New Green Marrow* are both excellent varieties, to be sown in succession, for coming into bearing through July, August, and September. Indeed, the *New Green Marrow* we have had in full bearing throughout October, by stepping, mulching, and applying manure-water, as above mentioned. Its average height is seven feet. There are several other good varieties of peas, but those we have named, if sown in succession, would amply furnish an exten-

sive demand of good peas from the end of May until October.

G. W. J., & JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 11.)

EVERY winter bud and blossom has now come forth; and there is nothing more to be done, till the voice of the Almighty shall awaken sleeping vegetation, and call it up from the deep of the earth again. The light gossamer flowers of the clematis I occasionally see, wreathing the barren boughs like snow-flakes—a sort of memorial of the past; and the winter furze, with its golden blossoms, decks the hedges, and gives them a cheerful aspect. This is sweet, but not so richly fragrant as its summer sister; and the stalks and prickles are browner and less handsome. Still, at this season, we are charmed to see and smell a flower, and are little inclined to quarrel with its more dusky hue. Furze would be a lovely addition to a garden, where it could fill up spaces under trees, or form small patches on the lawn. In wild healthy situations it would be extremely suitable; and in such soil, the pretty white and amethyst-coloured heaths would form a rich and glowing under-growth, more beautiful than grass, and useful too—for when grown high enough to cut and tie up into bundles, heath makes excellent thatching for bowers and sheds, and looks far prettier than straw. I have a bower thatched all over with heath, or ling, as it is sometimes called; and, with an occasional patch or two, where the wind has forced its way through it, it has lasted for twelve or thirteen years, and is sound and serviceable still. Furze and heath may be considered very common plants, and so indeed they are; but they are beautiful and sweet, and would, I think, be much admired, if placed judiciously among trees and shrubs. The simple-minded florist—to whom alone I venture to address myself—might add much to the beauty of her “pleasance” by thus adopting some of the wild plants and shrubs that pass almost unnoticed in the fields and woods, but would make grateful returns for her fostering care, and become richer and finer from improved cultivation. Furze will not root well if transplanted. I know that it has perpetually failed when moved from its place; it must be raised from seed. It is a beautiful hedge plant, on the summit of banks, when properly clipped, so as to be always thick and rich; but it is not a sufficient protection against cattle, unless the bank and ditch are deep and high. Furze is cut down every third year, and this causes either a glow of bloom, or none at all. Where good effect is wanted, this might be obtained by cutting a portion only of each plant; and where it forms a hedge, by cutting one side down every year, and leaving the other to stand and bloom—for, as a hedge, it should be broad enough to admit of this. Thus, there would be a constant sheet of blossom; and if winter furze is planted with it, both seasons would be enlivened by its brilliant flowers. In the island of Guernsey, where the cattle are always tethered, the banks are frequently clothed with furze, which, in that genial, delightful spot, flourishes richly; and it is impossible to describe the beauty and sweetness of the walks and views during the flowering season. I know not

any scene of simple nature more charming to the eye than commons or heathy brows glittering with this dazzling flower, so truly golden, and so very sweet. If cottagers encouraged these plants on banks, they would be useful to feed their fire or oven; and, when cut, should be carefully tied up in bundles for that purpose. I know my humbler friends are sometimes sadly neglectful of many things that might be turned to profit; and even their hedges would be made extremely useful, instead of falling to pieces, and being stuffed with sticks and briars. Every spot and inch of ground should be turned to account, especially by cottagers, whose gardens too often present a woful scene of neglect and ruin, when by diligence and activity they might largely contribute to the family support, and fill up many idle wasted hours with wholesome employment.

And now, while the forest trees shiver in the blast, we turn gladly to the fir, whose rich clothing now is doubly useful—pleasing the eye, and screening the poor dripping birds from wet and cold. The spruce seems to revel in her graceful beauty, waving her spreading boughs as if in triumph; and the stern, sturdy Scotch fir, with its dark cumbrous foliage, enriches, though it scarcely enlivens, the winter scene. When dotted among larch plantations, the Scotch takes somewhat from their lifeless appearance, and contrasts agreeably with their pale brown hue.

But the monarch of the evergreen world is the noble, interesting cedar—a tree we should strive to place in every garden, not only for its beauty, but for the many recollections that hang, as it were, on every bough. It may truly be called the Tree of the Bible, so often is it spoken of in Holy Writ. Such was its beauty and grandeur in the east, that the cedar is used in all the sublime prophetic descriptions of whatever was beautiful, or stately, or flourishing, among the kingdoms of the earth,—but chiefly as applied to the people “beloved for their fathers’ sake;” and it was even employed by Solomon faintly to shadow forth the beauty of Him who is Lord over His Church, and whose glory the most fervent imagery can but darkly portray. These majestic trees should stand singly on a lawn. Sometimes their branches incline to the earth, spreading widely around the trunk, and forming a natural canopy, under which it is delightful to sit in summer; for even in this chilling climate there is a kind of spiciness about them, and they speak of other times and other lands, full of interest to a Christian’s heart; and we know that although the cedar is the glory of Lebanon, yet even it, in its pride and strength, shall be broken by “the voice of the Lord.”

Let us listen to that voice. The closed and opening year is “a time to keep silence,” and also “a time to speak.” Deep stillness has settled upon the earth. Nature is at rest, and a solemn pause takes place. Well would it be for us if we paused too, and thought of all the past year is burdened with; for every thought, and word, and work of man is stereotyped, and there is but one hand that can ever blot them out.

In our youthful days we love to dance the old year out, and a joyous dance it seems to be; but things would go better with us if we welcomed the coming year in a different way; for too often “the end of that mirth is heaviness.” I do not know a more affecting sound than the chime that bursts from the village church, when the unconscious clock has tolled the knell of the departed year, and ushers in the new. It is most solemn—most impressive; and, coming from the house sacred to prayer and praise, it seems

like the people’s thankful acknowledgment for some added mercy. I wish their hearts and voices were mixing with the joyful peal. I wish, too, that my cottage readers would take a friendly warning at this special time, and strive to separate the work of ringing from that of drinking, for they are apt to travel hand-in-hand, and that which is intended as a mark of joy and gratitude becomes a means of intemperance and sin. This should not be. Even our harmless amusements and useful employments may thus bring down a curse, and not a blessing, on our heads. We cannot expect our fruits and flowers to flourish; we cannot expect “to receive the early and the latter rain;” or to see our children grow up as the young plants, if we regard not the honour of God in all we do and say. We may dig and sow, and water our crops, but the blight will come; the worm will destroy; the hand of God will mar our labours, unless His name is feared and honoured, and His word written “on the door-posts of our houses and on our gates.”

Let us, as we step into another year, remember this; it is of deep importance to our peace and our prosperity. It equally affects the high and low, the rich and poor. None can thrive *long*, without a blessing. It gladdens the palace, and gilds the cottage walls; it brightens the path of peer and peasant; it sweetens and sanctifies the joys of home, and gives the surest increase to the useful labours of “The Cottage Gardener.”

SCRAPS.

NAKED-FLOWERED JASMINE, OR JESSAMINE.—A plant of Mr. Fortune’s *Jasminum nudiflorum* is in blossom on the conservative wall of the Horticultural Society’s Garden, as are also the specimens of *Chimonanthus* there. The latter never fail to produce their sweet flowers at this season, and that with little trouble. The chief point to attend to in their management is pruning. This should never be done with a knife; where they require it, the points of the roots only should be nipped off with the finger and thumb. A plant of *Jasminum nudiflorum* was also coming finely into flower in the open border. It offers fair to become one of our most ornamental hardy winter flowering shrubs.—*Gardener’s Chronicle*.

EXPERIMENTS IN POTATO-GROWING.—Mr. John Walker, of Mansfield, Nottinghamshire, says, “Last spring I procured samples of different varieties from Yorkshire, Lancashire, Northampton, and other places. The ground allotted for experiment was about a hundred and forty-four square yards, and a good dark hazel loam, on a stronger subsoil, or what is usually termed ‘limestone land’ with us. On this I grew about eighteen varieties, and treated them in the following manner:—

Cash-in-hand—(We think this a good name to begin with)—I had out of Yorkshire. Planted four inches in depth, and covered about two inches thick with a vegetable soil, composed of decayed pea haulm and spent lime; they were quite free from disease.

Thoresby’s Seedlings I tried several ways.—1st Row. On the old-fashioned system, with fresh manure, covering with soil. This row was decidedly bad. 2nd Row. With strong soil, inclining to red clay. This, too, was very bad.

3rd Row. With road scrapings and wood ashes. These were much better than the above.

4th Row. These were treated with the refuse of my winter greens, chopped into lengths of about two inches, spread in the drill, and the potatoes planted on it, covering with light soil. These were *entirely free from disease*, though the tubers were smaller than 1 and 2. The quality, however, was excellent.

The remainder of this variety (Thoresby's Seedling) were planted in decayed vegetable soil, to which was added a small quantity of crushed bones and other animal matter. Of these about one-third were diseased.

Early Strawberry.—1st Row. Dressed and planted in wood ashes, charred vegetables, and spent lime. Quite free, with the exception of some three or four tubers.

2nd Row. Planted with fresh manure. Very bad indeed.

3rd Row. With old manure. One-half diseased.

4th Row. Old manure, with soot strewed over, when covered up with soil. Only one-fifth bad.

Rilott's Flour Ball.—The first row in decayed vegetables, in which a good portion of salt had been mixed when green, were not more than *one-tenth* diseased: whilst the very next row, planted in a similar manner, (only that bones, &c., had been mixed with it instead of salt,) were one-half bad.

Engineers, planted in similar soil to the first row of Flour Balls, were entirely free, with the exception of three tubers in the two rows.

Winter Pink Eyes and *Radicals*, from Lancashire, planted in a similar compost to the Engineers and Flour Ball, No. 1, with the addition of a *few wood ashes*, were perfectly sound.

Soden's Early Oxford and *Tinley's Early*.—Wood ashes, leaf mould, peat, and a little lime. A most beautiful clear sample.

Fortyfold.—Planted in decayed vegetables, mixed with salt. Nearly free, not more than one in twenty, and these but slightly. Another row, with old manure, about one-twelfth.

Farmer's Glory.—With manure, *very bad*; with decayed vegetables and bones, one-half bad. This appears to be a variety very subject to disease.

Hague's Seedling.—With manure, a very heavy crop, but sadly diseased; and with equal parts manure and vegetable soil, half were affected. This is a very fine-flavoured sort, but with me the tops were too long, and the tubers lay far from the stem; qualities which I by no means admire.

Regents.—One row, planted with vegetable mould and salt, was nearly free; whilst two rows, planted with night soil (privy manure), wood ashes, and leaf mould, were nearly all bad, and exhibited symptoms of disease very early in the season. The same results were produced with two other varieties, planted in a similar manner.

Repealers, with manure, very bad. And I may here observe, that a few *Early Strawberries*, planted where a small heap of manure had lain last winter, and covered with peat that had been dried in the sun, were a *very heavy crop*, and entirely free from disease."—*Midland Florist*.

[We extract the preceding because they are facts. Among other intimations for our guidance, they confirm what the experience of others had previously indicated,—viz., that fresh stimulating dungs promote the potato murrain. To shew how soil and locality influence this disease, it deserves to be re-

marked, that the editor of the *Midland Florist* planted at Nottingham three of the foregoing varieties, (Early Strawberries, Tinley's Earlies, and Engineers,) on soil unmanured with anything but old decayed turf, and had not a sound potato among their produce.—Ed. C. G.]

TO CORRESPONDENTS.

OLEANDER SHEDDING ITS FLOWER-BUDS (*H—n, Bristol*).—The three shoots of your oleander ought to flower next July. Keep the plant as cool as possible till the middle or end of March, and only water it sufficiently to keep the soil a little damp. Early in May place it so that its leaves nearly touch the glass; water it freely after that, till you see the blossom-buds appear, and then place the pot in a saucer of water till the flowers are all gone. Do not turn it out of doors till after flowering.

CHARRING REFUSE (*Rev. J. Purton*).—If this, which you truly call "a most valuable manure," is apt to burn to ashes, you do not exclude the air sufficiently. Though covered over closely with turves or earth, sufficient air will get in to keep up the desired slow burning. If you follow the directions given by Mr. Barnes, at p. 83, you cannot fail of success.

DRAINING (*O. S.*).—The only soil that would not be benefitted by draining is a very light one, resting upon a very deep open subsoil. Clay soils are always improved by draining. The cost varies according to the nature of the soil, the depth of the drains, and accordingly as pipes or other drainage materials are used. On a clay soil, with the drains 18 feet apart and 3 feet deep, if pipes are used, the highest cost should be £8 per acre; and if stones, instead of pipes, about £4. On a light soil, with the drains 24 feet apart, the cost should be £6, or £3.

ESPALIER RAILS (*Ibid*).—The best are made in the form of iron hurdles. Wires may be stretched from post to post, and the branches will not be injured if proper care be taken in fastening them to the wires. We hope to endure as long as does taste for gardening among our countrymen.

GOOSEBERRY CUTTINGS (*Ibid*).—You will find full directions for planting these at p. 55. The same directions are applicable to currant cuttings.

PEACH AND PEAR-TREE PRUNING (*A Subscriber*).—The peach described by you is what gardeners term a "strong maiden." It has three shoots, you say, a yard each in length; shorten, therefore, one shoot on each side at least half its length, and from the other at least three-fourths must be pruned away. Train one right, one left, and the very short one perpendicular. We have no space here to give reasons, but such will appear in the proper place for every process connected with fruit-tree culture, as opportunity occurs. Similar principles apply to the Jargonelle. The wall must be covered, and an active root-pruning will effect it.

APPLE-GRAFTING ON SIBERIAN CRABS (*Ibid*).—You may graft shy bearing apples, or kinds too gross, on your Siberian crabs, by all means. This was a crotchet of the late celebrated Mr. Knight. We do not think it the best plan, but no doubt may answer.

MISCELLANEOUS.—S. K., Ipswich, will be inserted.—W. Fook must remember we have more tastes than that for flowers to cater for, but he shall have his share of attention.—M. Saut, thanks, but the drawing is scarcely intelligible.—An Owner of *Coltgate Allotments* shall have full explanations relative to tank-making.—Rev. L. D. will be answered in our next.—R. Ferriss will find full particulars relative to gooseberry cuttings at p. 55, and the same are applicable to currant cuttings in every respect.

COAL-ASHES (*R. Marsland*).—These are very good, mixed with night-soil, if the staple of your soil is too heavy; but they are injurious if your soil is light. Reade's Treatise is priced five shillings; you can get it through any bookseller. Your two other queries shall be answered in our next.

AGE OF THE BEE (*Querist*).—Dr. Bevan is somewhat surprised that Mr. Lloyd should state that the age of the bee is unknown, as the experiments detailed in chap. 29 of the "Honey-Bee" are generally admitted to be conclusive on that subject, and they have never been controverted.

INDUSTRIAL SELF-SUPPORTING SCHOOLS (*Clericus, J. H.*).—We cannot hear of any reason why those at Eastbourne were abandoned, except that, on the death of Mrs. Gilbert, no patron succeeded to take the lead, so essential for the prosperity of such institutions.

WEEKLY CALENDAR.

M D	W D	JANUARY 18—24, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock hef. Sun.	Day of Year.
18	Th.	Prisca. Tufted Pocher goes.	Silvery Moss (Bryum)	vii	23 a 4	2 25	24	10 48	18
19	F.	Cole Titmouse heard. [ings.	White Dead Nettle	58	24	3 26	25	11 6	19
20	S.	Fabian. Starlings resort to build.	Large Dead Nettle	57	26	4 23	26	11 24	20
21	SUN.	2 SUN. A. EPIF. Agnes. Grosbeak goes.	Christmas Rose	56	28	5 18	27	11 41	21
22	M.	Vincent. Mezereon flowers.	Early Willow Grass	55	30	6 9	28	11 58	22
23	TU.	Sun's dec. 19° 24' s. Skylark sings.	Saucer-like Peziza	53	31	6 53	29	12 13	23
24	W.	Great Titmouse heard.	Pointless Moss (Phasum)	52	33	sets	☉	12 28	24

PRISCA was a Roman virgin, martyred by command of the Emperor Claudius, about the year 47, for refusing to desert Christianity.

FABIAN, nineteenth Bishop of Rome, was martyred on this day in the year 214, during the Decian persecution.

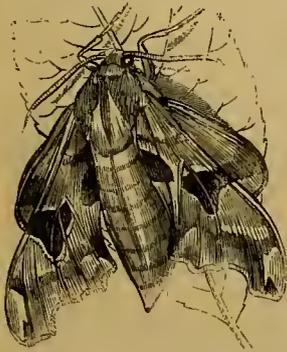
AGNES, another Roman and Christian virgin, was martyred on account of her religion, by order of the Emperor Diocletian, about the year 304. She was only thirteen at the time she was beheaded. Formerly our country maidens were accustomed to go to bed supperless on the night of the 20th, which they called "fasting St. Agnes' fast," with the belief that their future husbands would appear to them in their dreams.

VINCENT was a Spanish Christian, burnt during the same persecution, by the Emperor Diocletian, in the year 304.

PHENOMENA OF THE SEASON.—Whilst we are writing this (January 6th), the face of the earth is covered with snow which fell the preceding night; but a thaw has commenced, and as one of our objects in publishing these notes is to awaken a spirit of inquiry among our readers, let us examine a little into "the why and because" of what this thaw is doing. We see that a spade was carelessly left upon one of the borders yesterday, and the snow has melted from off the iron part, whilst it remains unaltered upon the handle. Why is this? Because metal becomes warmed much faster than wood. Thawing is the return of ice or snow to the state of water, and this thawing is occasioned by their being exposed to a temperature higher than 32°,

at which water freezes. That higher temperature is occasioned either by the direct rays of the sun, or by a warm current of air, and from these the iron of the spade receives, or absorbs, heat faster than does the wood of the handle. As the iron receives heat faster, so does it part with it faster than wood does; or, as the chemists say, it is a better conductor of heat. Therefore, the iron of the spade gives out the heat to the snow more quickly, and melts it more rapidly than is done by the wooden handle. The thermometer shews that, now it is thawing, the air is warmer than yesterday when it was freezing, yet we feel the cold more,—to use a common phrase, "it is a raw penetrating cold." Why is this? Because the air is damper during a thaw than during a frost, and damp air absorbs, or conducts heat from our bodies, and from all other bodies, faster than dry air does. Plants in a greenhouse, or elsewhere, will endure without hurt a degree of cold, if the air within it is dry, that would kill them if that air was damp.

INSECTS.—In the present month, a few years since, when grubbing up the roots of some old lime, or linden trees, we found many of the pupæ or chrysalis of the Lime Hawk Moth (*Smerinthus tilia*).* We believe that during the present month, and until the end of March, is the best time for taking them from their resting places about the roots of the lime and elm. They are dark brown, and found about two or three inches below the surface of the earth. In May the perfect insect, or moth, comes forth from the pupa. Its thorax, or



JAN.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
18	Rain.	Frost.	Cloudy.	Cloudy.	Rain.	Showery.	Frost.	Fine.
Highest & lowest temp.	47°—33°	33°—31°	49°—33°	44°—38°	46°—33°	53°—35°	32°—28°	36°—27°
19	Showery.	Cloudy.	Cloudy.	Fine.	Showery.	Rain.	Cloudy.	Cloudy.
	36°—28°	33°—27°	44°—34°	48°—37°	45°—32°	54°—41°	33°—26°	35°—29°
20	Fine.	Cloudy.	Cloudy.	Cloudy.	Rain.	Fine.	Snow.	Cloudy.
	34°—22°	33°—32°	39°—29°	48°—28°	45°—24°	51°—40°	36°—25°	35°—30°
21	Frosty.	Cloudy.	Cloudy.	Cloudy.	Frost.	Showery.	Snow.	Cloudy.
	38°—25°	35°—30°	41°—34°	47°—34°	45°—21°	55°—50°	36°—30°	32°—30°
22	Frosty.	Cloudy.	Fine.	Rain.	Fine.	Rain.	Snow.	Cloudy.
	44°—32°	38°—29°	44°—34°	49°—26°	46°—38°	56°—41°	36°—30°	33°—28°
23	Fine.	Sleet.	Showery.	Fine.	Cloudy.	Showery.	Cloudy.	Cloudy.
	43°—32°	38°—18°	48°—43°	45°—35°	48°—39°	51°—42°	44°—34°	35°—29°
24	Snow.	Frosty.	Showery.	Fine.	Showery.	Fine.	Showery.	Cloudy.
	38°—26°	36°—23°	48°—39°	43°—23°	46°—25°	53°—41°	48°—35°	37°—29°

brest, is ash-coloured, with three olive green bands; body ash-coloured; upper wings pale brick-red, blotched with olive green near the middle and upper edge; the outer edge has a broad border of olive green; lower wings rather darker, but mixed with the same colour; feelers, or horns (*antennæ*) and feet, ash-coloured. Each female lays about fifty eggs, from which the caterpillars are hatched in July and August, and are then found feeding upon the leaves of the lime and elm. They are rough; green, with reddish yellow stripes along their whole length; thinner before than behind; and have tails. They are usually found alone, being very liable to attack and wound each other. They change to the pupa state in October, first burying themselves in the ground, and becoming of a bright purple colour just before that change. It is curious that the moth invariably comes forth from the pupa precisely at noon.

* *Pupa* or *Chrysalis* is the form assumed by the grub or caterpillar, and in which it remains at rest, until the time arrives for its final change into a perfect insect.

ANOTHER of the most excellent of our British gardeners has been gathered by death; but, to mitigate our regret, we have the knowledge that he was ready for the harvest, and has left behind him a remembrance, a character, which all may benefit by imitating. Mr. William M'Nab, Curator of the Royal Botanic Garden at Edinburgh, died a few weeks since, at near the allotted age of three-score years and ten.

"He first saw the light," says Dr. Neill, in a communication with which he has favoured us, "in 1780, in the parish of Dailly, in Ayrshire, where his father was a farmer. His early years were devoted

to the duties of a shepherd on the hills of his native country. Amid those scenes his genius was early directed to the beautiful forms and variety exhibited by vegetable life; and our stripling shepherd was inspired with a strong predilection for the occupation of a gardener. His father, yielding to his wishes, had him apprenticed to the gardener of Mr. Kennedy, of Dalquharran, at the age of 16. After serving three years in that place, he was recommended by Mr. Kennedy to the late Mr. Walter Dickson, of Edinburgh, who procured him a situation in the gardens of Lord Haddington, at Tynningham. There he remained about a year, when, being anxious to improve still farther in his profession, he went to

London, where he had the good fortune to be recommended to Mr. Aiton, Superintendent of the Royal Garden at Kew, and to obtain employment in that magnificent establishment; after three years' service in the different departments, he was appointed to the responsible situation of foreman. There he remained for several years, acquiring knowledge and experience; and his conduct and intelligence recommended him to the favourable notice of his Majesty George III., then a frequent visitor at Kew, and brought him in contact with Sir Joseph Banks, the ready patron and judicious friend of modest merit. On the death of the Curator of the Royal Botanical Garden at Edinburgh, the late Professor Rutherford consulted his friend Sir Joseph on the choice of a successor, and Sir Joseph strongly recommended Mr. M'Nab, who immediately received the appointment, and entered on the duties of his new office in May, 1810. It is therefore nearly forty years since Mr. M'Nab was called to Edinburgh.

"After his appointment, he exerted himself with indomitable industry in the old Botanic Garden of Edinburgh, and when it became necessary to transfer the Garden to its present locality, Mr. M'Nab displayed remarkable skill in his arrangements for that purpose; particularly in the successful removal of trees, shrubs, and plants, to their new situation; some of them of large size, and probably 100 years old. During his whole career, Mr. M'Nab pursued a steady and unobtrusive course of observation and experiment with regard to the rearing of exotics from all quarters of the globe; and that he has been pre-eminently successful in this department, the Botanic Garden in its present state furnishes ample proof. He has also, by useful publications, made known to others both the nature and results of his practice; and his numerous pupils have not failed to disseminate widely the lessons they were taught. Indeed, by the strict order and un-deviating regularity which he has ever both displayed and enforced, Mr. M'Nab may be said to have organised a new school of practical gardeners; while his kindly encouragement of merit, wherever it appeared among his assistants, and his unwearied attention to every request for advice or aid, whether from operative or amateur horticulturists, has made him as universally esteemed as he was extensively known.

"Mr. M'Nab's happy combination of sound theoretical views with rules of practice, has never been exceeded by any horticultural writer. His papers on the management of Heaths and the transplantation of Evergreens are guides which will never mislead the inquirer. But he taught by personal example more than by written precept; and those only, who have now lost the former, can judge correctly of the value which would have been contained in the latter."

Thus, by his own persevering and unwearied efforts, and by his obliging manners, did the shepherd's boy win his way through the paths of science and of life, until he deserved and obtained one of the best appointments attainable in that particular department of the arts and sciences to which he devoted his mind. The knowledge to which he attained was deep and accurate, and the courtesy which adorned him was the joint offspring of a sound sense and a kind heart.

"No man," says Dr. Balfour, the Edinburgh Pro-

fessor of Botany, "possessed a more thorough knowledge of his profession in all its departments; and yet, combined with his extensive information, there was an innate retiring modesty and unobtrusiveness of deportment, which endeared him to every one. His advice and counsel were readily given when asked, and they were always tendered in such a way as to secure universal respect. Few men ever had a greater number of friends, in all ranks of society, during his lifetime; and none ever died more generally regretted. His death was a loss to the city, and will be deeply felt by all the practical gardeners of the country."

Yet, with all these high and acknowledged attainments, Mr. M'Nab was never presuming; but, on the contrary, like a true son of genius, always modest and unpretending. "He was respectful to his superiors in rank," says Dr. Neill, "yet without being in the slightest degree obsequious. No man knew better his position in society, and he conducted himself accordingly." Thus loved and honoured, Mr. M'Nab lived and died; and it must have been a comfort in his dying hour to know that he had trained up a son so well, that he is not only worthy to be, but who probably will be, his successor in the Curatorship.*

THE FRUIT-GARDEN.

NUTS.—As some of the correspondents of THE COTTAGE GARDENER have inquired about nut culture, we will endeavour to supply them with the information for which they are seeking. The culture of nuts is seldom pursued by the cottager as a profitable article, unless it be in the county of Kent, so long famed for its filberts. We do not see, however, why its culture may not be attempted by the cottier—especially in the vicinity of large towns, and where the soil is of a free loamy texture.

VARIETIES.—There are several varieties of this interesting shrub; but, amongst them all, the filbert has for many years claimed the pre-eminence in the dessert. Nevertheless, some of the other kinds are well worthy of cultivation—some for their size, and some for the individual character stamped on them, although mainly affecting the beard or husk, from whence it would appear the name of "full beard" or filbert is derived. These, like all our other fruits, have had their varieties multiplied by seedlings, some partaking more of the character of their male parent, others of the female. The kinds worthy of cultivation may be classed under two heads—1, filberts; 2, nuts; the remaining portion being for the most part seedlings, not far removed from the wild nut. Some of these kinds are propagated by grafting on the common hazel, others are reared by suckers. The Spanish Cob is preferred by some, as a stock, on account of its strength, &c.; but we feel pretty well assured that the whole would answer better (as part of a dwarfing system) for small gardens, propagated by cuttings, and trained accordingly.

As special kinds, we would cultivate the following:—
The White filbert; first rate.

* This son, Mr. James M'Nab, is at present, we believe, Superintendent of the Caledonian Horticultural Society's Garden, at Edinburgh.

The Red filbert; interesting on account of the pink coating inside, and scarcely inferior to the former.
 The Frizzled filbert; very ornamental.
 The Cosford; large, a good bearer, and thin shelled.
 The Cobs; very large, upright in growth.
 The Downton; probably a variety of the former.

The above are all that will be needed by the readers of THE COTTAGE GARDENER. The next matter is how to cultivate them properly.

Culture.—Nuts, like most other fruits, may be over excited; or, as the gardeners term it, "run too much to wood." This is to be seen in the ordinary hedge, where hazels may be found which seldom bear; whilst the uncultivated, unpruned hazel of the wood is notorious, when in a situation exposed to the light, and possessing some age, for abundant crops.

The cultivation, therefore, of nuts is by no means difficult; indeed, they are more likely to be injured by over-cultivation than otherwise. They should, in all cases, be trained to a single stem; for the production of suckers,* or rather the permitting them to remain, is most injurious to their future success. Suckers will spring up, and they must every year be removed.

The stems should be from half a yard to two feet in height, and the head should be formed after the manner of dwarf apple trees. As we cannot describe all the minutæ in this paper, we will recur to the subject in due time.

It must be remembered that the fruit is mostly produced from the extremities of the shoots; for the nut loves light as well as most other fruits. After carrying up a clear stem, therefore, the next point is to form a proper head, and this must be accomplished in the same way as the ordinary red currant bush—by selecting four or five shoots which are well placed. Such shoots must, of course, be obtained by heading back—that is, cutting them off near to the stem; and in order to obtain a sufficient number, the operation may be repeated. The middle of the bush must be kept rather open, for the sake of admitting light to all parts of the tree, or rather bush, for it should not be permitted to grow above the height of five or six feet in small gardens. The keeping them thus dwarf involves some consideration connected with soil, root-pruning, &c., about which we will presently offer advice. The trees having formed sufficient heads, annual pruning, more or less, must be resorted to: for no fruit-tree answers better to judicious pruning than the nut. This operation must not be performed until February.

The nut is what Botanists term an amentaceous shrub,† of the Linnæan class Monœcia; all of which class produce blossoms of both male and female separately, but on the same bush. The male blossoms are well known by their gay dangling appearance, and by the yellow dust they shed on being handled; this dust is the fertilizing pollen. The female blossoms, on the contrary, are so obscure as to require a close examination in order to find them. When in full blossom, they are of a lively pink colour, and appear like little brushes at the tips of the side shoots produced by mature wood. The female blossoms do not appear until a few days after the males have opened.

Now it so happens, that trees at a certain age, or under certain conditions of culture, will sometimes produce either almost entirely male blossoms, or

otherwise female. Those with the males alone must, of necessity, be barren for that year; but if only female blossoms appear, branches should be cut, bearing catkins of male blossoms, and suspended or tied amongst those possessing female blossoms. Occasionally, too, on a sunny day, a branch of the dusty catkins may be carried in the hand like a rod, and brushed lightly over the tips of the female-bearing bushes.

Many good crops of nuts have been lost for want of this precaution: it is vain to think of the female blossom yielding fruit, without the catkins have been near them in February; then the blossoms may be readily distinguished, and then it is that pruning may be successfully carried out.

The fruit is produced, principally, on the former year's wood, and generally form compact side shoots, the produce of leaders of a short-jointed and mature appearance. Such lateral fruit-bearing branches may be induced in greater abundance by shortening back strong shoots of this character. Thinning out, however, is one of the principal matters; for, unless this be duly attended to, the bush will become crowded with spray worse than useless,—it will also obstruct the light from the bearing portions, as well as hinder the circulation of air. A great deal of small spray will be produced on the inner portions of the branches; and these, although of the character of bearing-wood, are generally unfruitful; most of these must be pruned away. Any one who observes the habit of the nut closely, will soon perceive that the shrubs are most disposed to bear at the extremities of the branches; thus evincing their partiality to plenty of light and air. These, then, are the portions of the tree where the eye must be directed, as to fruit-bearing properties. Such leaders, however, must not be encouraged so thickly as to cross each other; and, in order to prevent the lower portion of the head from becoming naked, a good strong well-placed shoot may be occasionally encouraged, heading it back in due time, in order to keep it producing side branches, &c. After duly thinning away superfluous shoots, the principal leaders should be all shortened. As a general rule, we would say, remove about a quarter of the length; this, as before observed, will cause the tree to produce abundance of side spray, from which, in the future spring, the fruiting shoots may be selected.

Soil.—Almost any light loamy soil will answer; it should, however, more incline to sand than clay. There is no occasion to use any manure for nuts when first planted, but merely to dig or trench deep for them; and if the soil is turfy, so much the better: the turf may be trenched down nearly half a yard. The main thing in the majority of soils, is to guard against over luxuriance; for such will, in some kinds, produce only catkins or male blossoms. Then it will be found that nuts bear most surely when tamed by a little age. When, however, the trees get old, or become very weak, which is sometimes the case, top dressings should be applied occasionally, the same as to other fruit-trees.

Planting.—Nuts are not always planted in a continuous way in small gardens. When such is the case, if in a single row, about eight feet apart will suffice; if, however, there are more rows than one, and they are side by side, we should place the rows ten feet apart, and the plants eight feet apart in the row. We have known them succeed to admiration on the marginal borders, alternating with apples and other fruits. A row of nut and gooseberry

* Suckers—Shoots from the roots.

† Producing catkins as male blossoms.

bushes would answer well, if the nuts were trained with a stem a yard high. They would then assist in protecting the gooseberries from late spring frosts.

Root-pruning.—We may here observe, that root-pruning may be practised when the trees are too gross. We have performed the operation ourselves, more than twenty years ago, on a whole line of bushes, which grew in a clayey soil, and produced very powerful rods. This operation was severe, and it brought them into capital bearing in the course of a year: it was accompanied by a severe pruning and shortening.

COMPOSTS.—We hope all parties will have seized an occasion, during the past frost, of turning their compost heaps, whether for the fruit or the vegetable garden. No pains should be spared, at any period, by the cottager, to preserve and store away turf parings of any kind; such may always be obtained from the vicinity of unenclosed lands, lane-sides, &c. Ditch-scurings too: what an excellent material to dress onions or carrot beds with, when mellowed down! They are, also, capital material for fruit-tree holes.

GENERAL PLANTING.—In another week or two, planting may be resumed, and the making of the necessary stations may be accomplished in frosty weather, if necessary. Everything should be in readiness, for such extra operations are sure to impede the ordinary spring business.

HEDGES.—We need scarcely remind our readers, that this is a very good time in which to perform all hedge operations; whether plashing, cutting in, cutting down, or the making new hedge lines. In the latter case, means should at all times be taken to break up the ground thoroughly; and in the case of intervening portions of a very barren character, some better material should occasionally be introduced; for of what use is the mere formality of hedge planting, unless means are taken to ensure a good fence in all its parts? When we have brought up some arrears of matter, incidental to the season, we will say a good deal more about hedges.

R. ERRINGTON.

THE FLOWER-GARDEN.

WATER.—Of all the ornaments used to embellish a garden, there is none that has so pleasing an effect, especially in the warm days of summer, as water. On a large scale—when we can have so much of it as to afford space for islands, planted with weeping willows and other suitable trees, together with waterfalls, rocks, and secluded and open walks, rustic bridges, boat-houses, and rustic seats—we have then a power to please the eye and delight the senses to the highest degree. In happy England there are many such scenes, but with such grand specimens of the power of water to embellish scenery, these pages have nothing to do. Yet in the gardens of our amateur, if not of our cottage gardens, small pieces of water may be used with very good effect; that is, whenever there is a supply of that beautiful and useful element. The size of the collected water ought to be proportioned to the garden; that is, of that portion of the garden devoted to the lawn, flower-garden, and shrubbery. Its form may either be ornamental or natural. By ornamental, we mean formed with masonry, either round or oval, surrounded by a gravel

walk or the lawn. A natural piece of water is of an irregular form, the points of which may have a few rough stones so placed as partly to hide the hollows, with a weeping willow or two planted amongst them. If a walk is carried on one side of it, a shrub or two should be planted to hide the extent of the water; and on the opposite side a shelving pebbly walk, with a small bed of shrubs here and there, would make pretty small views and shadows in the water. To preserve the water from wasting away, or making the ground wet about it, the bottom and sides ought to be well puddled either with well wrought clay or fine sifted earth; we have used both for large reservoirs with equal success. If the ornamental form is adopted, the stones should be well built with Roman cement, and the bottom flagged and covered with the same. This water being exposed to the air will imbibe portions of it, and will, in consequence, be greatly improved for the purpose of watering the garden, plants in pots, syringing, &c. This water will also afford an opportunity and a good situation for growing aquatic plants, a considerable number of which are exceedingly handsome. We possess in this country one plant, an aquatic, of which the foliage and flowers are surpassed by scarcely any exotic water plant.* We allude to our own lovely water-lily, a plant whose beauty attracts the admiration of every one.

Gold and silver fish may also be kept in the water. the only thing to attend to in keeping them being to have a corner of the water protected from frost, to allow the fish a breathing place. This may easily be accomplished by having a few pieces of wood laid across one end of the pond, and place upon them some twigs of fir-trees, or a thick straw or rush mat.

SELECT AQUATIC PLANTS.

Alisma Plantago—Water Plantain, pink and white.	Nuphar Lutea—Yellow Water-lily, yellow.
— Ranunculoides—Ranunculus-like do. purple.	Nuphar advena—Strange ditto, yellow and red.
* Butomus Umbellatus—Umbel-flowered Flowering Rush, pink.	* Nymphaea Alba—White Water-lily.
* Calla Palustris—Marsh Calla, white.	Polygonum amphibium—Amphibious Polygonum, pink.
Caltha Palustris flore pleno—Double-flowering Marsh Marigold, yellow.	Potamogeton fluitans—Floating pond-weed, red.
— Asarifolia—Asarum-leaved ditto, yellow.	Sagittaria sagittifolia—Arrow-leaved Arrow-head, white.
* Hottonia palustris—Marsh Water-violet, flesh coloured.	— latifolia—Broad-leaved ditto, white.
Lobelia Dortmanna—Dortman's Lobelia, blue.	Teucrium scordium—Water Germander, purple.
Menyanthes Trifoliata—Three-leaved Buck-bean, white.	Trapa natans—Floating Water-caltrop, white.
Myriophyllum Spicatum—Spiked Water-milfoil, red.	— quadrispinosa—Four-spined ditto, white.
— Verticillatum—Whorled ditto, green.	Villarsia nymphoides—nymphocaulike Villarsia, yellow.
	— cordata—Heart-shaped leaved ditto, white.

Where the extent of the water is small, those marked with an asterisk (*) are the best. Most of them are natives of this country. The double marsh marigold is a fine species, and should be planted close to the bank.

FLORISTS' FLOWERS.

VERBENAS (*continued*).—At this season the verbenas will be under glass, either in frames or in a pit, or on a shelf in a greenhouse, as it may suit the convenience or means of the cultivator. The grand enemy to contend with now is damp, and the preventives are, keeping a dry atmosphere, picking off all decaying or mouldy leaves as they occur, giving no more water than is just necessary to keep them from

* Exotic, a plant from a foreign country.

flagging, and giving abundance of air on all favourable days. The lights may be drawn off in sunny mild weather, which will invigorate and strengthen them much. A dry atmosphere may be promoted by sprinkling between the pots some very fine dry coal-ashes. When they become wet, remove a thin coating of them, and replace it with some that is dry. This will require doing about once every three weeks or a month. Should the weather prove warm, the verbenas will be pushing young shoots, and whenever this is the case, nip off the tops, which will cause the plants to grow stocky and bushy.

Propagation.—By Cuttings in Spring.—To strike cuttings of verbenas in the quickest and best manner, the following things are necessary:—A gentle hotbed covered with a frame of one or two lights, according to the number wanted. Upon this bed lay a coating of coarse river sand, about one or two inches thick. Then take some pots, five inches across, fill them to within one inch of the top with light compost, made of one-half loam, one-quarter leaf-mould, and one-quarter sandy heath-mould (peat). Mix the whole thoroughly, and if not sandy enough, add as much sand as will make it so. When a sufficient number of pots are filled to the above depth, then have the other inch filled with as pure sand as you can procure. Then give a gentle watering, and the plants are ready for the cuttings. Take these from off the tops of the plants, about 1½ inch long, and with a sharp knife cut off the bottom leaves close to the stem, and finish with a clean cut across the bottom of the cutting. Make as many at once as will fill one pot. Place the cuttings round the edge of the pot, about an inch apart. As each pot is filled, repeat the watering, and place them in the frame, shading them for a few days from the light, and afterwards only when the sun shines. In a month they will be rooted, and should then be potted off into pots, 2½ inches across, one plant in each. Again give a gentle watering, and replace them in the frame for a week or ten days to establish them, when they may be gradually hardened by giving air freely, and exposing them to the full light and open air on cloudy days, or during showery weather. All this ought to be done in early spring, about the end of March, or early in April, so as to have the stock ready for planting out in the beds at the latter end of May or beginning of June.

Planting Cuttings in Autumn.—Then, again, cuttings should be struck towards the end of September, to be stored away in frames or pits through the winter. They will afford cuttings from their tops, and make strong early plants, either to cultivate in pots for the greenhouse, or to plant out in the beds or borders.

By Layers.—Good plants of verbenas may be procured by simply pegging down some shoots, and laying a small stone upon a joint, and as soon as they are rooted, cutting them off and potting them in small pots, placing them in a frame or under hand-glasses. These make nice plants, but are more trouble and not such perfect plants as those from the cuttings. Yet, where there is not convenience for cuttings, the layering is a very useful and efficient mode of increasing these lovely flowers.

RANUNCULUS.—In the last week's number we made a few remarks on this favourite tribe of flowers. We shall now give a select list of good kinds that are moderately cheap, arranged in classes of colours. This list will be useful to most of our flower-loving friends. We would caution them, however, against

attempting to grow choice-named kinds in common borders, or in a bed not properly prepared, in the manner before described. The best kinds for borders are the Turban Ranunculus.

SELECT LIST OF RANUNCULUSES.

White-edged—Abella, Bellerius.	Orange rose—Arlequin, Gomar.
White—Parisian, Pausanias.	Orange—Cedo nulli.
White-spotted—Agrippina, Father Mathew, Jewess, Juliet.	Orange-mottled—Earl of Coventry, Lord Eldon.
White, rose-striped—Beaute des Dames, Ord's Fancy, Temeraire.	Yellow-spotted—Adrianus, Gordon.
White mottled—Belle Agreeable, Cicero, Endon, Father Mathew, Lucinda.	Yellow—Earl of Chester, Helen, La Purite, Roi des Ranunculuses.
White, purple-edged—Burns, Esther, Venus, Reine des fleurs.	Yellow-mottled—Competitor, Duke of Clarence, Demetrius.
White, rose-edged—Nonpareil.	Yellow-edged—Dazzle, Fulvius.
Rose—Alexander, Apollo, Atlas, Bertie, Jupiter, Pindar, Tarquin.	Light yellow—Eliza, Voltaire.
Mottled rose—Clarissa, Erskine.	Striped—Carneus, Flora.
Rose, spotted—Evelina.	Dark—Condoreet, Dolphin, Hercules, Lania, Naxaræ, Negre, Oel noir, Mantua noir, Tippou Sahn.
Rose, yellow-striped—Assemblage des Beantes, Favourite, Mignonne, General Hoche.	Crimson—Duke of Bedford, Henrietta, Grand Romana.
Rose, yellow-spotted—Soleil.	Crimson-striped—Earl of Hardwick.
Dark rose—Surpassé tout.	Cream, crimson-striped—Duchess of Leeds.
Buff-edged—Basilicus, Triton.	Scarlet—Ruhens, Sylvia.
Buff-shaded—Blanche superb, Maurice.	Purple—Terpsichore.
Buff rose-mottled—Candace.	Dark olive—Bouquet sanspareil, Lesbos, Olive superb.
Buff-spotted—Harriet.	

The prices of the above list are not the most expensive, being from 1s, 1s 6d, to 2s 6d each, according to Messrs. Tyso and Sons' Catalogue.

T. APPELBY.

GREENHOUSE AND WINDOW GARDENING.

HOW TO SEND BULBS, &c., FROM HOT CLIMATES TO ENGLAND.—In all likelihood some of our readers may have a relative, friend, or old school-fellow, at one or other of the Missionary Stations in South Africa, far away in those parched and inhospitable regions where the Ixia, the Amaryllis, and a thousand other fine plants delight to flower. After writing so strongly against the usual way of receiving bulbs from the stores in Cape Town, it occurred to me that I was in duty bound to offer some observations on a better mode of proceeding; and that by giving some practical hints about gathering, packing, and transmitting seeds and bulbs, in and from the Cape, it would pave the way for a better system of receiving and exchanging bulbs and seeds with friends, residents in our Cape Colony, than that about which we hear so many complaints at present. There is nothing new or requiring any very extraordinary exertions about this system. I have acted on the same plan for many years, to get hold of novelties from different parts of the world, as well as from the Cape; and it was only the other day that I received notice from this very colony that a large assortment of seeds, which I sent off last February, all arrived safe, and vegetated freely. Not one failure was reported out of one hundred kinds of flower-seeds, and about forty sorts of our best vegetable seeds. I had them all thoroughly well dried, and they were packed in coarse brown paper, which was also dried, and then put into a strong deal box. The address was written on a piece of zinc with indelible ink, so that rats or accidents could not deface it on the journey. I also pounded some camphor, and strewed it among the packages, in packing the box, to prevent weevils or other insects from destroying the seeds, as they often do, especially those coming home from foreign parts.

The box was addressed to a London ship agent, who put it safe on board, at Falmouth, for a trifling commission. This is always the best and safest way to send off or receive parcels from any port on the coast, unless you are near the port, and can do it in person. Captains of our navy are proverbial for their liberality, in allowing room for small boxes of seeds, &c., and taking them home free of charge; but they are the worst botanists in the world, and it is not of the least use to ask them to procure good seeds for you. Hundreds of these jolly good fellows lay out their money in foreign ports every year, to procure a collection of seeds for some friend at home, not one out of a thousand of which is worth two-pence. There are harpies, or rather dewnright rascals, in all foreign ports, who will sell you anything, from a scarlet crocus to a blue dahlia, or any other unknown monster of a flower; and such are the parties who often make up parcels of seeds for the masters of vessels, and passing travellers, to make home presents with; or, I should rather say, for home nuisances; for I hardly ever receive such presents without grumbling, if the presenter does not send me at the same time a cheque on his banker to remunerate me for the trouble of proving his seeds to have been worthless. Even if the seeds are labelled, "From the Botanic Gardens at Floribunda," it does not often mend the matter; and from long experience I can safely assert, that there is not a Captain in Her Majesty's Royal Navy who can calculate the *latitude* or *longitude* of a seed warehouse beyond the line. But there is a kind of freemasonry amongst these naval officers, by which, if you get a promise from any one of them, he can enlist the good service of a brother officer to bring you home a box of seeds or roots from any part of the world, and often without any charge whatever. Therefore, the best advice that I can offer, with respect to African seeds and bulbs, is to repeat instructions which I sent out in 1843 to a young intelligent officer, then stationed at the Cape of Good Hope, who, under these directions, sent home the best collection of bulbs that I ever saw imported at one time, although he hardly knew one plant from another. Some of the bulbs were not larger than the common garden pea, yet every one of them arrived quite safe; and a beautiful lot they were, numbering in all forty-six different sorts. The instructions were simple enough, and here they are.

Look about you during the rainy season, for that is the time when all the bulbous plants within your beat are most likely to be in flower. Fix on those which attract your own attention as being the most beautiful, mark their locality, and when the rains are over, and the vegetation is parched up, your marked plants will be ready to remove. Take some sharp-pointed instrument to turn them up with, and do not pull them up by main force, if you can help it. When you meet with masses of dry brown netted sort of vegetable matter underground, be not deceived in supposing them dead things; they are the envelopes of some bulb belonging to the *Ixia* or *Iris* tribe, and you will find a whole family nestled in the middle of them. Separate the bulbs from their envelopes, for they are of no more use, being only a provision of nature to ward off the superabundant rains from the little family they inclose. When you meet with large bulbs like the Spanish onion, be sure to get as many of their long roots saved as you can. One of them, called there the Candelabra plant (*Brunsvigia grandiflora*), I want particularly to get a dry specimen of, taking the whole stalk and flower-head when in full blossom,

and dried in the shade. You will, probably, be much struck with the beauty of the silver trees (*Leucodendron argenteum*); the seed cones will put you in mind of the Scotch fir at home, but we have plenty of them already; however, as the cones will do for chimney ornaments, or to be given away for museums, let us have a few of them also. There are three or four sorts of the honey plant (*Protea*); one of them, *P. Mellifera*, will supply you with honey all the time it is in flower. Send a few seeds of them, as they take up little room for some years, and they may be useful for exchanging with the nurseryman for other things; but, in a general way, we do not want large trees or bushes, and none of the mimosas, for we have dwarfer sorts of them from Australia. Indeed, I am not aware of any seeds, within your reach, that we want particularly; unless you could hear of the yellow-flowering geraniums, of which the seeds would be a golden harvest to us; but, unfortunately, I cannot tell you of their locality. You must inquire diligently about them, however, from the bullock-drivers who may arrive from the interior; particularly any one from the north-eastern parts, where the Caffre frontier was considered to be, thirty years since. Perhaps Baron Ludwic (a merchant at Cape Town) can tell you of their whereabouts. The Baron then possessed the best garden in Cape Town; he died last year. Let all things be well dried, and packed in coarse brown paper, in separate articles, and put into a strong box; and if you put in some pounded camphor or any strong turpentine-smelling powder, it may keep away cockroaches, weevils, or any other insects, which often destroy seeds on long voyages. See, also, to a proper address; cards and parchment are sure to be gnawed by the rats, and if you can get Captain B. to put the box in the "locker," it will be the safest place about the ship for them; and when he arrives at Falmouth, let him hand over the box at once to any respectable ship-broker, who will forward it there through his London agent.

Now, some such directions as the foregoing, sent out to any of the missionary stations in south Africa, could hardly fail of procuring fine bulbs and seeds. There was an apothecary of the name of J. C. Lacy, in Port Elizabeth, Algoa Bay, who took orders for such things three or four years since, and, if he is there still, he could manage to see things from the eastern parts of the colony shipped from Algoa Bay, or forward them to Cape Town. He would be the most likely person to hunt out the yellow geraniums, if they are to be found in the eastern parts of the colony, which I much doubt. The north-western parts are more likely to furnish them; and those pasture lands along the banks of the Oliphant's River, and of the banks of the streams which run into it, seem to be more suited for such vegetation than the desolate plains and vallies to the eastward; but this is a mere conjecture. Those who have friends at any of the stations between Cape Town and the Orange River, are the most likely to procure them; and many people believe there are some handsome plants never yet introduced from that large portion of the colony washed by the Atlantic; and this, probably, is true enough, seeing that almost all European travellers visiting the Cape, after a stroll up Table Mountain, direct their steps eastward to the Caffre frontiers. At any rate, we are quite certain that there are two or three kinds of geraniums, or, to call them by their more proper names, pelargoniums, growing *somewhere* in the Cape colony, with flowers as yellow as our buttercups—for we once possessed them, but they were lost soon after their arrival; and now

that our industrious florists have done such wonders in improving the breed of these beautiful plants, we are most anxious to reintroduce those yellow ones, to enable them to vary the colours by crossing them with their improved breeds, and I have no doubt but many of our readers will be able and willing to help us to procure such rare treasures; not to hoard them up, however, for the gross purposes of pecuniary gain, but to give them away freely to those who are the most likely to make the best use of them. For my own part, were I to receive a packet of their seeds to-morrow, I would only keep two or three, and send the rest to different florists eminent in their calling: and if one or two lost them in the rearing, some one would be sure to succeed, and thus save them to the country, and for me to recommend the new breed from them for cottage windows—after a while.

CANDELABRA PLANT.—With respect to the candelabra plant, the officer alluded to managed to dry a very good specimen for me. I have it now; it looks much like a huge agapanthus, or blue African lily, with forty-two flowers in one head, and the outside ones bending round on long foot-stalks, just like the branches of a chandelier, so that the name is very appropriate, and it would be a good thing if the names of all plants were so. Now this beautiful plant, with a very large bulb, in shape like a Spanish onion, but much larger when full grown, will grow in England in a cold pit, even without a flue,—but it must be planted in the soil without a pot, and the bed for it ought to be two feet deep. If the bottom is of clay, a drain to the lowest end must be made; but with any other kind of bottom, no drain will be wanted. The top of the bulb should stand just one inch below the surface, and to have six inches of sand all round the bulb, as that will be lighter than mould to press on the bulb. In summer, when the bulb is at rest, the glass light ought to stand on night and day, without giving air—the hotter it is inside, the better: and if the sand round the bulb is hot enough to burn one's fingers, it will come pretty near to the natural condition of this amaryllis—for a real true amaryllis it is after all—and therefore it must be handsome. A one-light box would hold nine or ten of them. They grow from September to the middle or end of April, and are very thirsty, but must not be watered over the leaves, for fear of its getting down between them, and rotting the bulb. They delight in fresh air whenever the weather is mild, just like English ladies. No amaryllis was ever known to live long in a confined atmosphere, and all the sisterhood should be got up in Africa with as many of their old roots preserved as possible, and if they are well dried, they will keep safe for six months or more.

ROUTINE WORK.—Nothing is to be potted or sown yet for the window or the greenhouse. It is true, gardeners begin to sow seeds, especially foreign seeds, about this time, but then they have so many conveniences to aid them; they also put in roots of the beautiful *Achimenes* now, and set them in a cucumber frame, to get them to flower early in May, and so go on in succession to October. Any one who has grown this most useful tribe before, and has a cucumber frame at work, or in preparation to begin soon, may try this bold experiment with a few roots. They will do anyhow for a while, till they sprout, even lying on the top of the soil, or in a saucer of either sand or earth, but they need not be potted till they grow out an inch or two. About the end

of January is the half-way house between autumn and spring, and many of the old gardeners used to look over all their plants at this time, and some of the old rules are just as good as the new ones. A dampish pit, in a low situation, is a bad place for plants; they ought to be taken out on a fine day, and some dry ashes put in the bottom, and in frosty weather have the covering taken off for a few hours every day when the sun shines. A few patches of *crocuses* and *snoudrops* might very easily be taken up now, with a lot of soil round the roots, if the frost will allow it. They would flower in a room just as well as if potted last October, and, in many cases, a good deal better, for they are ticklish things if not well managed, but now they are so forward that they cannot help flowering.

D. BEATON.

THE KITCHEN-GARDEN.

ASPARAGUS FORCING.—In a previous number (p. 92) we gave directions for planting this in a hotbed, with other particulars. In addition, we have to observe, that the more rapidly plants are forced, the smaller in size will be the produce. A two-light frame will hold enough plants to yield 300 or 400 shoots in the course of about three weeks, during which they will continue in production. The best temperature during the day is 65 degs., and at night not lower than 50 degs.

CUCUMBERS.—Keep the temperature of the fruiting beds to 80 degs. during the day, and to 65 degs. at night.

SEAKALE.—This excellent and useful winter vegetable is not cultivated to the extent it should be by amateurs and cottagers, for it will produce an abundance of blanched shoots throughout the autumn, winter, and spring months, when fresh vegetables are scarce.

The soil should be good, well manured, trenched, and pulverized. If intended to be raised from seed, lay the ground down level in the month of April, after the winter's trenching, choosing suitable weather for the operation; draw drills (if the kale is to stand on the same ground permanently to be forced, or otherways blanched) three feet apart, and finally thin the plants to two feet apart in the rows. This will allow room to get between them, in the growing season, to apply soakings of liquid manure, which seakale delights in. Liquid manure from the piggery, cow-house, stable, sheep-shed, or brewed from the excrements of animals, or from guano, with a good portion of salt at all times dissolved in it, is what the growth of seakale may wonderfully be improved by. The strength and the frequency of such liquid manure being applied, must be regulated by the strength of the plants, and the season of its application. For instance, at the commencement of the growing season, the liquid manure should be of moderate strength; as the plants gain strength with the advancement of the season, so should stronger soakings of liquid manure be applied. The same rule holds good with all applications of liquid manure, either in the open field, garden, hot-house, greenhouse, or frame, and it should always be applied in as clear a state as possible; for we have observed much mischief and stagnation caused to vegetation, both in fruit and plant culture, by sudden strong muddy applications of liquid manure; and so we have by applications of too strong liquid manure to such vege-

tation. Fruits and plants which have only had a meagre or poor preparation made for them, and to such as are diseased or in a weak state, strong applications of liquid manure is a ready way to still more weaken or to destroy them.

Planting.—If the ground is to be planted with seakale to stand permanently, choose one-year old plants from a poor piece of ground, no matter how small they are, so that they are clean from canker and the distorted, crooked swellings caused in them by wounds from a variety of the cauliflower grub. Plant them in rows three feet apart, and the plants in the row two feet apart. Insert the plants singly, and not as formerly practised—two or three plants in a bunch, for they then exhaust and starve each other.

There are so many ways of producing good seakale, and some of them so easy and simple, that we imagine almost any amateur or cottager who can spare a small corner to grow a few plants may have the pleasure of enjoying good seakale in those winter and spring months when good vegetables are scarce. A cellar, or the bottom of a dark cupboard, or any dark corner, are excellent places for producing early shoots of it; if planted in sand, old tan, leaf, or other light vegetable soil, or even in common garden earth. The plants should, of course, be kept as much in darkness as possible, if intended to be well blanched, but for our own eating we do not object to its being a little coloured. Strong plants should be taken up or secured for such places, and no matter how thick they are placed. Water them occasionally with tepid water, and two or three crops of excellent seakale may be obtained in succession, before the plants are exhausted. We are at this time cutting, at Bieton, the third crop from plants put in a cellar-like place in November last, and a very fair and good production it is. Those who do not choose to place the plants on the floor of their cellar, cupboard, or such-like place, could put them in boxes, filled with any of the before-named kinds of materials. Those who have not a cellar or cupboard, and have a dark corner in a stable, cow-house, wood-house, or any other fuel-house, could produce good seakale from a few strong roots placed in a rough-made box, as above directed, and have the pleasure of enjoying a luxury in early spring; but to all those who have cellars underground, as in London and other large towns, nothing could be more easy or simple than producing first-rate, well-blanched seakale, and good rhubarb too, in abundance, all winter and spring. Of course rhubarb has no objection to the light, although it may be produced of excellent quality in darkness. Thus any cook, or other servant, by procuring strong plants, which may be obtained easily enough, and at a reasonable rate too, could produce those articles of as good quality as the best gardener. Indeed, any one who has the convenience, and will carry out our simple directions, may enjoy those vegetables in abundance, and at a season of year when, if to be purchased, a high price has to be paid for them. I have often wondered why this simple way of producing seakale and rhubarb has not, ere this, come more into general practice, as, to our knowledge, it has been to a limited extent in practice for these last twenty-five years; although, perhaps, it has not been made known enough for the million to be benefitted by its simplicity. For our own part, we keep no secrets which would be likely to benefit others, as we observe abundant space to extend our humble ideas in search of further information in other matters, having never yet seen anything of man's production so perfect but could be still further improved.

SEED LIST CONTINUED. ONIONS.—The *Deptford* and true *Reading* kinds are excellent varieties both for quality and producing a weighty crop. They are, also, both good coloured varieties for kitchen purposes. The *White Globe* and *Old Brown Globe* are also excellent, and both good late keepers, particularly the latter, which is the best of all for late keeping. The *White Spanish* and *Two-bladed* are the best varieties for pickling purposes, and making use of as small-sized, handsome shaped onions, for other table purposes. Indeed, for such uses, there is no variety equal to the Two-bladed. Besides, the small bulbs of this variety, placed thickly in drills at this season, will form fine, early, round, well-shaped bulbs, to succeed the last year's bulbs, earlier than the *Underground Onion* can be produced, which is also a good variety to cultivate on a small scale in case of a bad seed-saving season, or in case of a blighted season, as they are ready for early harvesting.

G. W. J., & JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 12.)

Now for the rose. We cannot choose a sweeter subject for the opening year; yet I scarcely know how or where to begin on such a fruitful theme. I am no scientific gardener, and must leave the names of the hundreds of varieties to other writers; but I wish to direct the attention of "my sisters," and more particularly of the cottager, to the culture of this queen of flowers, which might be cultivated more extensively than it is, and add great sweetness and splendour to their gardens, and the general appearance of the country, as we pass along. The cottager is of more importance in this respect than he is aware of. Nothing adds so much to the landscape as picturesque, well-ordered *cottages*—nothing delights the feelings more than a neat hamlet of snug, cheerful, bowery-looking *cottages*, with their little gardens brimful of cabbages, potatoes, and onions; and their wickets and porches shaded over with waving flowers. The residences of gentlemen do not please and interest us half so much, unless it is the parsonage, which, to an English heart, is, and must ever be, second only to the venerable pile near which it stands. But the beauty and interest of every parish and every village rests chiefly with the labourers. Let them remember this, and though they are poor, and may think themselves of no account, yet they are of much importance, as well to the beauty of their native land as to its welfare and support. There is moral beauty, too, in the cultivated cottage garden. Neatness and attendance bespeak activity, diligence, and care; neglect and untidiness tell of the *beer-house*. So that, as a tree is known by its fruit, a man may, in a great measure, be known by his garden.*

There are roses of all kinds and colours, of every taste and temper. There are climbers, creepers, bushes; hardy, tender, deciduous and evergreen; thorny and thornless, double and single, sweet and scentless; in short, there is scarcely a freak or fancy in the mind of man that the rose cannot meet with and

* We recommend to our readers, in connexion with this subject, a very excellent tract published by Wertheim, entitled "The Cleanest Cottage; or, The Influence of Home."—Ed. C. G.

gratify. I often lean over cottage wickets, and wish I could see these brilliant flowers more frequently mingling with the trees and bushes clustering round the windows, and entering the very doors; and, with little trouble, a constant succession of bloom might be obtained through the summer months, and much of the winter. The China rose is unwearied in its bloom, very fragrant, and will climb to a considerable height. The crimson China rose is a beautiful flower, seldom seen in cottage gardens. Some are delicately sweet, and cover a wall beautifully. There are many cluster roses which climb rapidly, and wave their white blossoms in masses of great beauty; and the Moss and Cabbage roses do extremely well against a wall or as espaliers, and should be specially encouraged; for of all varieties they are the sweetest, and the former is the most beautiful rose we possess.

I know how difficult it is for the poorer classes to procure any variety of fruit or flowers: their money is required for food and clothing; they cannot buy a plant; but they might frequently obtain a rose or other flower from slips without expense or trouble, and thus indulge an innocent fancy without injuring themselves or others. I have found the easiest way of striking slips of roses is by placing three or four in a phial half full of water, so that the slips may be an inch or two below the surface; and, as the water lessens, fill up again, for they must never become dry. In about six weeks you will see tender threads appearing at the ends of the slips, which rapidly increase into silvery rootlets. When they are an inch or two in length, break the phial, lest the roots should be injured by drawing them out, and plant each rooted slip carefully in pots. Sometimes only one slip will root; therefore, if possible, procure two or three of each kind, to prevent disappointment. The bottle should be hung in a hot, sunny window, when the slips are placed in it, which forces them into action more surely. I have been so constantly disappointed in slips of roses placed in the open ground, which have invariably died, even after promising for a time to do well, that I now always adopt the "cold water system," and have had much better success. It is an interesting little process, and the spreading roots are very beautiful, and give us some insight into the wonders that so silently take place beneath the soil.

All roses are most safely propagated by suckers; and, if they can be procured, this is the proper way. The old plants should be removed as seldom as possible,—roses do not like being disturbed, but the autumn, or the very early spring, is the time to do so, when unavoidable. It is a good plan to take off some of the long fleshy-looking roots, and cut them into pieces three inches long; plant them, and water well in dry weather. This should be done in March, and succeeds admirably, even with those roses that are the least disposed to succeed by cuttings or slips. Moss roses do extremely well this way, which is a very great advantage, as they afford few slips in general, and seldom do well in the hands of inexperienced gardeners. They are such exquisitely beautiful flowers, that we should, if possible, fill our gardens with them; and it is surprising how seldom we meet with moss roses, considering their loveliness and fragrance, and the favour with which they are always regarded. The moss roses of our childhood were in greater abundance than they are now—probably from the introduction of so many new varieties; not one of which is equal to that, our old and special favourite. They are all charming certainly,—but let us not reject the old fashioned

richly scented flowers for the gayer but less valuable productions of the present day. I am certain that all the contents that every greenhouse England possesses cannot rival the simple, yet perfect, beauty of a half-blown moss rose,—and every lady, every cottager, every person who loves and possesses flowers, may thus compete with the rich and scientific gardener, and display as fine a specimen as any that his more skilful labours can command. Let us use and enjoy those pleasures we *can* possess, without sighing for those beyond our reach and means. Let us delight in those beautiful works of God that we can collect around us according to our limited powers, for if we view them as springing into life and beauty at His command, and *prize* it, because He has himself formed and fashioned them, we shall gaze on a single buttercup and daisy with as much astonishment and grateful delight as on the most admired and tender inhabitant of the stove or hot-house, and linger among our cottage borders and shrubs with *never-ceasing* wonder and satisfaction. Let us not forget adoration and praise.

There is so much to say on the subject of the rose, that I must continue it in future papers. The pruning season is at hand, and we shall soon be called to work again. We are once more returning to the golden beams of the summer sun; and, in a few short months, all will be green and bright! The dark stormy days of winter usher in the mild and fruitful spring.

PROPAGATION OF HOLLYHOCKS.

In your twelfth number (p. 118) is a short account of the best method of cultivating the hollyhock, particularly recommending the culture from seed. As I have paid some attention to the cultivation, and taken much interest (as an amateur) in that flower for some years, I beg to offer a few remarks, as far as my experience goes, which may not be uninteresting to some of your readers.

I have found from seed there is no dependance either in the colours or shape of the flower, although I have carefully marked the seed and put zinc labels with it when sown. More frequently than otherwise the colours have proved quite opposite to what I expected, and frequently the shape of the flower; therefore the only advantage obtained is the variety, which you must generally wait two seasons for. The easiest method of cultivation which I have discovered, combining certainty of colour and form, is to select and mark such as you wish to propagate: then, in June or early in July (as the season best suits), cut a branch of the plant or plants selected into as many pieces as there are eyes or shoots, allowing a space of two inches on each side of the eye. Cut them into such lengths, and slit them down the middle, removing all the pith from the inside; put them immediately into some soil or earth in a shady place, (say the north side of your garden) about an inch deep, keeping the eye above the earth; water and cover with a hand-glass, and if hot weather, water well over the glass, but do not disturb it. In six weeks there will be nice young plants, which should be planted out early in November, in such places as required. They will blossom freely in the June following. This plan is the only one which I have found to my satisfaction: it may induce others to try some improvement which may prove even better.

J. ROBERTS.

NEW VEGETABLES AND FRUITS.*

POTATO.—*Jackson's Ash-leaved Kidney.*—Said by its proprietor to be the best and most prolific Early Kidney.

PEA.—*Clarke's Lincoln-green-podded Marrow.*—Said to be as early as its parent, the Early Ringwood, with a greener pod.

APPLE.—*Mannington's Pearmain.*—This was raised at Uckfield, in Sussex. Said to be an excellent dessert apple, and that it will keep to the end of May.

CUCUMBER.—*Lord Kenyon's Favourite, or Syon Free Bearer.*—Said to be superior, for winter cultivation, to the old Syon House.

GRAPE.—*The Queen's Muscat.*—Raised by Mr. Glendinning, Chiswick Nursery. Berries middle-sized, oval, yellowish, semi-transparent; when ripe, firm, yet tender and sugary. It is early, and well adapted for pot-culture.

CAULIFLOWERS.—*Largest Asiatic.*—Raised by Messrs. Schertzer, of Haarlem. Taller and larger than the common cauliflower. *Early Leyden* is the same as the Waleharen brocoli. *Black Silician* is the purple Cape brocoli.

KIDNEY BEANS.—*Spanish Hybrid Runner (Haricot D'Espagne Hybride).*—From Messrs. Vilmorin, of Paris; blossoms beautiful, scarlet and white. Pods not superior to those of the Scarlet Runner, and do not remain so long good. *Shilling's New French Bean* seems to be a cross between the Scarlet Runner and some dwarf variety. Pods large, and continue long good.

* We may here state, to avoid repetition, that in these announcements we do not recommend any new article, *unless we especially say so.* Otherwise, we merely inform our readers that there are such new things to be had.

HEATING A GREENHOUSE (P. S., Bow).—You will find tubes of galvanized iron instead of brick flues very objectionable, and not less expensive after a time. The tubes will give out a great heat during the day, and injure the plants by burning the particles of dust always floating in the air—a burning always detected by the peculiar smell occasioned. At night, also, you will be unable to keep out the frost, for the tubes will become rapidly cold; whereas the bricks of a flue, well heated at the time of making up the fire at night, will continue warm until next morning.

MUSHROOM BED (Mrs. Birch).—The aspect is not of much consequence. One end to the south and the other to the north would be preferable. You will find full directions for making one at p. 70. If you wish for further information we shall be pleased to hear from you again. Sweetbrier seed may yet be obtained from old bushes in your neighbourhood; but for berberry seed you must wait until next autumn. It is not usually kept at the seed shops.

NIGHT SOIL (A. A.).—If your garden soil is clayey, mix it with your ashes; but if your soil is light, you had better mix it with some of the soil itself; or, which is far better, with some clayey earth before applying it. The object of mixing it at all is for the purpose of getting it more easily on to the beds, and dug in. The fresher it is used the better. It is a very strong manure, and far too much so for fruit-trees. The reason of your fruit being small and dry more probably arises from bad pruning and want of drainage, than from poverty of soil. You will find much information on these and the other subjects you mention in our previous numbers, and we shall give more directions as we proceed.

GRAVEL WALKS (E. Bonfield).—Your gravel walks becoming mossy and discoloured so soon after cleaving tells at once that your garden requires to be drained. The stagnant water in the soil fosters moss of all kinds. If you cannot drain your garden, relay your walks, giving them a foundation a foot deep of brickbats, clinkers, &c., to act as drainage to the gravel above them. You had better be content with beautiful flowers, without caring whether they possess the florists' characteristics of perfection, but we shall, as occasions arise, give the characters you require.

TUBEROSE (G. A., Stoke-Newington).—March is the month for potting the tuberoses, and before that time full directions will be given for its culture.

GREENHOUSE HEATING (R. Marsland).—You can treat the tank in your greenhouse in the way you propose, but do not allow the pipes to sink lower than the bottom of the boiler; as, if sediments get into the pipes, they will settle in the lowest bend, and stop the circula-

tion of the hot water. If you plunge pots over the tank, you must not exceed 90°. Will that be sufficient for the house? There is no advantage gained by having the water in a tank deeper than four or five inches.

TANKS (An Owner of Cottage Allotments).—"Senilis" will prepare answers to your valuable letter shortly, and is gratified that his hurried contribution has called forth such practical remarks.

PLANTING DWARF STANDARD PEARS (R. Blackburn).—You may safely follow the plan recommended in the fruit department, certainly in the event of ground naturally eligible—say half a yard of sound soil resting on a bed of dry and clean gravel. There will be no occasion for forming a substratum; such soils, however, are indeed the exception.

PLANTING HOLLIES (Ibid).—On another occasion do try the middle of October. As to keeping them bushy, your apprehensions about edge-tools in pruning them are pretty correct. We have obtained the objects you desire by using our finger and thumb—in the summer—pinching out successively the terminal shoot, commencing with the season after planting.

COAL-TAR ON FAUIT-TREES (Rev. L. D.).—We have used coal-tar extensively on the rough bark of old timber-trees in a park, to keep the horses from barking them, and have not witnessed any ill-effects. On the smooth bark of fruit-trees it may act differently. We should be afraid of your resin and bees'-wax closing the pores. You had better pare away the decayed parts, and apply a mixture of cow-dung, lime, and ordinary clay—using by far most of the first. This, bound on with old rags, will cause the bark to grow again or to become sound. If any are very badly abused, we would plant fresh ones.

WHITETHORN HEDGES (Ibid).—Your object is, we presume, in planting thorns unpruned alternately with younger stuff, to erect a temporary hedge and to save the expense of rails. It may answer, but we do not hold it the best hedge husbandry. It is usual, in many parts, to plant the whitethorn sloping at an angle of about 45°; the reasons being, that the plants will develop more shoots in this position. This is, doubtless, true; for the sap becomes more equalized.

HEDGE ON YELLOW CLAY (Ibid).—A pure yellow clay, if real clay, will be found too stubborn to produce any fence in perfection. We fear even your willows, although the plan is good if they will grow. We have seen hollies, forming capital hedges, in a very strong, tenacious, yellow loam; but in such the whitethorn also would succeed. If your clay was thrown out to freeze, and, when melted, some road scrapings, lime rubbish, or any hungry, sandy soil trimmed in with it, you would have a better chance.

PEAR-TREE SHEDDING ITS BLOSSOM UNSET (R. Marsland).—Your pear is a most hopeless subject. As for root-pruning, that will do no good in your case. Root-pruning is to induce flower-buds, and you have plenty. We should suspect its tap-roots are in a pernicious subsoil, and would take it up and replant it in fresh maiden soil, cutting away every descending root, or spreading them near the surface. If you examine the blossom, we dare say you will find the pistil or female part wanting or crippled. We have known many cases similar, and must confess they have generally baffled our efforts. You may try pollen, or male dust, from another kind.

DYEAS' REPUSE (Newington-green).—This, consisting of wood-chips chiefly, would be long in decaying if dug fresh into the soil. We should render it more speedily available to our crops, either by mixing it with quick-lime, and frequently turning over the heap, or we should char the refuse. Either mode would produce a good manure.

ROUGH PLATE-GLASS (A Practical).—We have not seen it tried on a large scale, but we have tested it enough to our own satisfaction to prove that it interrupts, but does not exclude, the direct heating rays of the sun, which are those alone which can scorch. We shall be glad if any of our readers can inform us of any greenhouse or stove glazed with rough glass. Our correspondent says, "theoretically, the glass at Kew was to be perfection; practically, it is useless for the purposes intended." We always expected this; for, if any of the sun's rays could be injurious to plants, God would not have mixed them with its light.

STANDARD CURRENT-TREES (Rev. J. T. C. Cooper).—We no not know of any nurseryman who keeps them for sale ready trained. You could very easily train them yourself, selecting some single stemmed young plants to begin upon; tying one shoot to a straight stake fixed by the side of the stem, and removing all side shoots until the centre one had reached the height you require.

DAMSON PRUNING (Brookland Gardens).—You will observe that we began the subject of plum-culture at p. 156, and in future papers upon the same subject you will find the information you seek.

CELERY SEED (F. Giles).—Mr. Turner, we have no doubt, will supply you if you write to him. See advertisement for his address. Your other questions shall be answered in our next.

TROPEOLUM TUBEROSUM (J. R. Wood).—This is the tuberous-rooted nasturtium, and was brought to England in 1836; a drawing of it is given in that excellent and cheap periodical, *Mund's Botanic Garden*. Its yellow and red flowers are very handsome. The tubers should be planted beneath a south wall, yet shaded by trees from the mid-day sun. Trench the soil two spades deep, and plant in the first week of April. The plants will require a trellis of some kind to climb upon. They bloom at the end of August, and continue in flower until cut down by frost. When the stems are dead, take up the tubers, dry them, and store them until the following April. In Peru, the tubers are cooked and eaten.

WEEKLY CALENDAR.

M D	W D	JANUARY 25—31, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
25	TH.	CONVERS. OF ST. PAUL.	Hepatica flowers.	5 1 a.	7 35 a.	4 6 a.	5 1	12 42	25
26	F.	Hazel flowers.*	White Butterbur.	49	36	7 14	2	12 55	26
27	S.	House-flies in windows.†	EarthMoss(Phascum	48	38	8 25	3	13 7	27
28	SUN.	4 SUN. A. EPIP.	Stinking Helcbore flowers.	47	40	9 38	4	13 19	28
29	M.	Daisy flowers.	Royal flowering Fern.	45	42	10 51	5	13 29	29
30	TU.	K. CHA. I. MART. 1649.	Snowdrop flowers.	44	44	morning	6	13 39	30
31	W.	Hilary Term ends.	Honey bee flies abroad.	42	45	0 5	7	13 48	31

ST. PAUL.—This festival, commemorating the conversion of the Apostle of the Gentiles, was adopted by our church in the year 1662, and well does the event deserve thus to be impressed upon the Christian's mind. The conversion of one of the most learned enemies of our faith, to being its ardent and unwearied teacher, and even to martyrdom in its cause, is almost the strongest evidence of the truth of that faith. It is curious, that the weather occurring on this day, 25th of January, in times and places far remote from each other, has been considered to afford an omen, or token, of the character of the year. The following lines embody the superstitious opinions entertained on this subject by our forefathers.

If Saint Paul's day be fair and clear,
It does betide a happy year;
But if it chance to snow or rain,
Then will he dear all kinds of grain;
If clouds or mists do dark the sky,
Great store of birds and beasts shall die;
And if the winds do fly aloft,
Then wars shall vex the kingdom oft.

PHENOMENA OF THE SEASON.—Although "March winds" have

INSECTS.—At the end of this month, and early in February, the Early Moth (*Geometra primaria*) is to be found



JAN.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
25	Fine.	Fine.	Fine.	Frosty.	Fine.	Showery.	Showery.	Cloudy.
Highest & lowest temp.	40°—32°	46°—35°	49°—44°	46°—36°	51°—42°	56°—46°	47°—33°	32°—25°
26	Fine.	Showery.	Cloudy.	Fine.	Fine.	Showery.	Fine.	Frosty.
	49°—43°	43°—21°	51°—45°	48°—27°	52°—33°	55°—41°	50°—41°	27°—20°
27	Fine.	Fine.	Cloudy.	Showery.	Rain.	Cloudy.	Showery.	Frosty.
	53°—30°	45°—31°	53°—50°	50°—39°	45°—23°	54°—40°	49°—40°	31°—19°
28	Cloudy.	Frosty.	Cloudy.	Showery.	Snow.	Cloudy.	Cloudy.	Frosty.
	44°—28°	45°—23°	56°—45°	54°—32°	45°—19°	56°—39°	47°—25°	29°—17°
29	Fine.	Sleet.	Cloudy.	Fine.	Cloudy.	Cloudy.	Fine.	Fine.
	46°—32°	45°—36°	55°—48°	54°—44°	45°—26°	54°—37°	44°—21°	44°—28°
30	Showery.	Fine.	Fine.	Fine.	Cloudy.	Cloudy.	Fine.	Showery.
	40°—37°	43°—32°	55°—36°	51°—32°	34°—27°	53°—40°	46°—33°	48°—36°
31	Showery.	Cloudy.	Showery.	Showery.	Frosty.	Cloudy.	Fine.	Cloudy.
	42°—28°	47°—30°	51°—44°	41°—26°	35°—22°	55°—44°	41°—21°	39°—28°

about our hedges. By some writers it is called *Cheimatobia rupricarparia*. The male, represented in the accompanying cut, generally measures rather less than 1½ inch in the expanse of the fore wings, which are greyish brown, with a broad dark bar across the middle, the edges of which are darkest and somewhat notched, narrowed behind, and bearing a dark dot in the middle. The hind wings are whitish, with the ordinary central dark dot placed before a nearly imperceptible narrow line which crosses each, the edges are marked with brown spots; the antennæ (horns) in the males are bepectinated (have bristles on each side so as to be like a comb). The female has short, rudimental, whitish-ashy wings, having a dark bar towards the point farthest from her body, and a slender streak across the hind wings. The caterpillar is greenish, with whitish lines and margin to the segments; it is to be found early in spring feeding on the wild plum, but we have seen it also upon damsons and bullaces growing in a hedge row. The moths appear in January and February, the males flying about hedge rows. It is rather a common insect.

* This refers to the male flowers, or catkins; the female flowers appear a few days later.

† This refers to their first appearance in activity, in rooms where there is no fire.—*Jennys*.

MANY letters having reached us, inquiring whether our directions for gardening operations are equally suited for Devonshire, the Midland Counties, and Scotland? and as the question involves important consequences, we have taken some pains to ascertain the opinions entertained by others before we made our reply. In making that reply, we have now no hesitation, because we find that we are unanimous.

The directions given by us weekly for the work to be done in the fruit, flower, and kitchen gardens, unless otherwise expressly stated, are so timed as to be most suitable for the Midland districts of England; and Mr. Errington and Mr. Appleby agree with us

in thinking that, in the extreme northern counties, the same operations may be done usually ten days or a fortnight earlier; and that in Devonshire, and along our south coast, about the same number of days later.

Mr. Errington says, in a letter now before us, "I should say, taking Birmingham as a centre, that Kent, or Devon, or Hampshire, would be at the very least ten or twelve days in advance in most matters; and that Northumberland and the adjacent counties would be at the very least 10 or 12 days in the rear of Birmingham. If a sowing were made in Hampshire on the 28th of August, then about Birmingham

it should be done on the 20th, and in Northumberland on the 12th of the same month. However, it must be remembered what a long neck of land constitutes the chief of Northumbria; and, indeed, all those parts north of Alnwick may, for practical purposes, be considered as a portion of Scotland. The difference, however, is more obvious in some things than in others, and perhaps it would be well to separate vegetable sowing from fruit ripening, and from flowers blossoming.

“When I lived on Wimbledon Heath, some five-and-twenty years since, our dahlias used generally to bloom a week or two longer in the autumn than those in the Valley of the Thames, only a mile distant, owing no doubt to the free dispersion of moisture on the hills.

“Winds, too! how they affect the *earliness* of produce! I am within about ten miles of Chester, yet they always beat us for early pease, aparagus, &c. by at least a week. They are immured within stone walls, and possess a fat alluvial soil; we are on the middle of Delamere forest, and every wind has a claim on us; besides, a great chasin lies open from us to Liverpool, and the Atlantic gales rush up continually. Too little attention by far is paid to these things as to seed sowing.”

Mr. Appleby, writing on the same subject, says:—“If wallflowers are sown at Birmingham on the 1st of June, they will make nice bushy plants, likely to stand through the winter better than if sown earlier. If wallflowers were sown in Northumberland the same day, they would be too small (unless the autumn was mild) to flower well in the following year. Again, if wallflowers were sown on the same day (1st of June) in Devonshire, they would be too gross and large to stand a severe winter. Therefore, to regulate this time of sowing to the three places, the following would be the proper times:—

At Birmingham, 1st of June;

In Northumberland, 14th of May;

In Devonshire, 14th of June.”

Although we thus state, as our opinion, that gardening operations necessary to be done in Midland England at any given time, ought, in general, to be performed ten days or a fortnight earlier in the north, and a similar number of days later in the south, let it be remembered that we suppose the soil, elevation above the sea, and aspect, are in each case similar. Mr. Errington's experience at Wimbledon is only one instance from the general experience of gardeners, of the influence those circumstances have over vegetation. So great is that influence, that, we are quite convinced, if any seed of a hardy plant were sown in an open border of an ordinary garden in Devonshire, on the 1st of June, that some of the same seed sown on a dark-coloured, light, well-drained border beneath a south wall in Northumberland, at only a moderate elevation above the sea, and not

in a mountain district, might be made to produce seedlings quite as early. We therefore quite agree with Mr. Beaton, who says:—“I would take in hand to have sowings of, say cauliflowers, to be done on the same day in Devonshire, Birmingham, York, Edinburgh, Perth, and Inverness, and would lay fifty to one that the crop in Inverness would first come to table, if I so chose. In 1837, when I was last at Inverness, the laburnum and hawthorn were three days in bloom before the same sorts in Kensington Gardens, London; and I kept journals of this sort for six weeks that season. Our blacksmith here (near Ipswich), who is only a quarter of a mile from us, can sow his early cabbage ten days later than I can, and yet be ten days before me at cutting time. We have tried it repeatedly.

“Earliness or lateness in sowing crops, and in their coming into production, depend more on the *aspect and subsoil* of the locality than on the latitude: that is, in our island, not taking hilly districts into the account.”

MORE than one correspondent having asked us what is meant by “Plants dedicated to each day” in our “Weekly Calendar,” a fuller and more prominent explanation seems to be required from us than is usually necessary in our customary place for answers. In countries where the Roman Catholic religion prevails, every day of the year is the anniversary of some saint, to each of whom a plant is dedicated, and is worn by any one on the anniversary, if he wishes to evince especial reverence for the saint then commemorated. Those saints are wiped from our Calendar, but the flowers, we think, may be well retained; because they have been so selected as to be brought to our notice at the time of their greatest beauty, or at the time when they may be most useful, or when some phenomenon about them may most strikingly enforce the comforting query, “If God so clothe the grass of the field, which to-day is, and to-morrow is east into the oven, shall he not much more clothe you, O ye of little faith?”

Closely connected with this subject is a little volume now before us, entitled “Historical Flowers and their Associations,” one well-designed, full of thought, and delightfully wrought out; and its author only speaks what we thought at the time we assigned a column to them in our “Weekly Calendar,” when he says, “Thus are the flowers as an ever-present voice, speaking to us out of the ‘midst of the garden.’” Moreover, the voice utters lessons of no small beauty and utility to those who will but attend to and consider them. In the Calendar to-day we have “the Winter Aconite,” the yellow blossoms of which are now to be found in our borders, of which they have been the earliest ornament ever since the plant's first introduction from Switzerland in the year 1596. Its botanical names are now *Eranthis hyemalis*, or

Winter Flower of Love; for it tells us, if we will but accept the lesson, that though all appears dead and dreary, yet that providential care and love are silently about our path, and that there can be but one answer to this question—

“ Since outward life requires them not,
Then wherefore had they birth?
To moister delight to man,
To beautify the earth.”

The daisy, the mosses, and the ferns, which comprise the other plants in this day's Calendar, offer the same reply, but they tell us much more. At this time of the year, when in our climate the more noble plants are at rest, and their functions almost suspended, these humbler and more hardy plants come forth to supply their place. We before explained (p. 63) that plants supply the atmosphere with the vital air (oxygen) necessary for our breathing. The aconite, the daisy, the moss, and the fern, are now performing this important office; and if we plunge them into water, we shall see the bubbles of healthful air which they are pouring forth.

Many other notes upon their use are before us, but our space warns us that we have no remaining room for more than an expression of the hope that we have satisfactorily explained why we give the “plants dedicated to each day.” In October next we shall have passed over the twelve months, and the column these plants have occupied will then be devoted to another subject.

At p. 14, Mr. Appleby, when speaking of soil for floricultural purposes, says, “that if it contains much oxide of iron, it must be avoided as the plague.” This warning aroused Messrs. Curtis and Co., of the West of England Roseries, near Bristol, for they cultivate a soil so red, that to the eye it seems to be composed chiefly of the red oxide, or rust, of iron. They sent us three well-grown plants of roses, with vigorous branches, and a full healthy amount of roots, to show what that soil produced, and at the same time they observed that Mr. Appleby could not know “the soil of a great part of Gloucestershire, where vegetation thrives in a soil which, from the large quantities of oxide of iron in it, is literally in many places a bright red.” Now, here is the source of the mistake. Messrs. Curtis have been under the wrong impression that the red colour of their soil arises from its oxide of iron, but we have ascertained that it does not contain more than six per cent.* This is a proportion not excessive; and many dark-coloured fertile soils contain as much. The soil of the West of England Roseries owes its colour, probably, to being the alluvium, or in-some-other-mode-pulverized portion of the red conglomerate and

red sandstone, the colour of which does not depend upon oxide of iron. Therefore, Mr. Appleby's statement, that much of this oxide in a soil is injurious to flowers, is not contradicted by the successful practice of Messrs. Curtis. Theirs is a red, but not a ferruginous (irony) soil.

THE FRUIT-GARDEN.

THE CHERRY.—In a few weeks' time we shall be compelled to offer a good deal of mere calendrical advice; we must, therefore, run through the principal fruits whilst time and space offers. We are the more anxious to do this, because we find, by the applications from querists, that many are waiting our lists, in order to select for planting by them.

We now deal with the cherry. Our cultivated kinds are worked (budded or grafted) on the wild cherry stock, called in some parts the merry-tree. They are grafted, or budded, precisely the same as apples, pears, &c., and at the same period. Less preparation is necessary for the cherry in regard of soil, than for any other fruit-tree, as it is not so impatient of indifferent subsoils as some of our other fruits, neither is it so liable to disease. Gunning—generally through accidental wounds—being the evil cherry-trees are most liable to.

Soil.—A deep sandy loam suits the cherry best, such, in fact, as would be considered a good carrot soil. This should be deeply trenched, and if poor, and no turfy matter in it, any raw vegetable matter may be trenched down.

Varieties.—To the cottager, as a matter of profit, we are not aware that we dare recommend any other kinds than the May-duke and the Morello. The May-duke, however, if intended to fetch a high price at a very early period, should be the *true early Duke*, for the late Duke, which is much like it in wood and general habit, is nearly a month later. Any cottier, living in the suburbs of busy commercial towns, where there is an active market, would, we think, find an early Duke cherry as profitable a fruit as the pear, and perhaps more so, for it is a very sure bearer, and comes sooner to profit than the pear. The finest and earliest Dukes we have ever known, were trained on gables facing the east, and those gables containing a chimney.

The Morello we have before adverted to, and we must again recommend it as a cottager's fruit, adapted for the north sides of buildings or dwelling-houses, or, in fact, for any aspect or situation too cold for other fruits. We may as well repeat, also, that the Morello will be found to succeed in a much stronger loam than most of the other cherries. We have known the fruit in such adhesive soils, on northern aspects, nearly as large as the Orleans plum; and we think that it may safely be affirmed, that this valuable fruit does not fail of a crop more than once in seven years, on an average. It is well known that the Morello is much esteemed for making brandy cherries, especially when cultivated in a superior manner; and, under such circumstances, will always realise very high prices with the confectioner.

We come now to cherries for the amateur; and we will give a list of truly good kinds, placed in the order of their ripening.

1. *Early Purple Griotte* or *Guigne*.—This is not equal to the early May-duke in point of quality, but is much earlier, ripening in the early part of

* The average of our analyses gives 5.5, or 5½ parts of oxide of iron in every one-hundred parts of soil.

- June. It is a deep-coloured, heart-shaped fruit, of middle size, adapted for either wall or standard culture.
2. *Early May-Duke*.—This is too well known to need description. It may be styled the best early cherry in the kingdom. Wall or standard. Ripe towards the end of June.
 3. *Black Eagle*.—A heart-shaped middle-sized fruit; a most prolific bearer, and very hardy as a standard, although equally deserving a wall. Ripe in the early part of July.
 4. *Elton*.—A splendid cherry—excelled by none. We consider no collection complete without it. Fruit large, pale, heart-shaped, and ripens in July. Particularly deserving a wall, but will succeed in our warmer counties very well as a standard.
 5. *Bigarreau* or *Graffion*.—A noble fruit, which has been much esteemed for many years. Fruit large, pale-coloured, of a somewhat obtuse character, and a good bearer. Perhaps better adapted for a standard than the wall, its large leaves being impatient of confinement. Ripe in July. It is very difficult to preserve from the wasps and flies; this, however, is one great hindrance in extended cherry culture, and suggests the employment of some canvass or other material.
 6. *Florence*.—Much like the Bigarreau, but ripens much later. Wall or standard.
 7. *Late Duke*.—Of the character of the May-duke; a great bearer, adapted for standards, but every collection should have one on a wall, protected from birds. Ripens in the course of August.
 8. *Morello*.—Well known. Ripens in August and September, and, if well protected, will endure until the end of October.
 9. *Büttner's October Morello*.—Later still than the Morello; of similar character. Is highly recommended for late purposes by good authorities; we, however, have no experience as to its quality.

To conclude, we may name the *Kentish*, so much used for drying; this is a very useful kind. The stone in this may be drawn away attached to the stalk. This answers best as a standard.

We will recur to modes of rearing, training, &c., when space occurs; but, for the present, we must finish the cherry with a few general remarks.

We have before said, and we must now repeat, that their training on walls should be based on the size and character of their leaves, as to the distance of the branches from each other. Indeed, this is a principle which ought to regulate the training of all our wall fruits. It ought to be considered that if we find one leaf overlaps another leaf on a wall, and is fastened down with nails, that the leaf so overlapped is not in so good a position to elaborate juices, and thereby to form a plump bud, as the leaves on the branches of trees dangling at liberty and unattached to a wall.

Again, we may add, that every amateur who aims at a long and clever succession of cherries through the season, should study well the aspects selected, in order to establish such in a judicious way. We would advise that one early Duke occupy in all cases a warm wall; we would even try and get one Morello in a warm aspect, for it is astonishing how luscious a Morello is after hanging several weeks in a warm situation.

For the rest, east or west, or any combinations of such aspects with the north, will answer very well; a south-east or south-west, of course, producing them earlier.

Our catalogue of kinds may appear destitute of

variety to those who garden high. We do not, however, profess to instruct such persons. Our desire is not to overshoot our mark; and, in order to follow out such a course in a consistent way, we think it far the best to recommend such kinds only as have established a reputation, and which we have ourselves cultivated. The list, therefore, will be found to contain at least a regular succession of most of the best cherries hitherto proved. To those amateurs who feel an interest in proving new kinds of fruit, we would recommend an application to such men as Mr. Rivers, of Sawbridgeworth, who is one of our most ingenious fruit cultivators. Mr. Rivers attempts the dwarfing system with all fruits; and, as a fundamental principle, he "begins at the beginning," viz., the root, either limiting the amount of the ascending sap by means of root pruning, or, what is better still, by judiciously adapting the stock to the purposes sought. He has grafted the cherry extensively on the Mahaleb stock, with what amount of success we do not know—the practice is at least ingenious.

PEAR PRUNING.—We here beg to offer a few brief hints about pear pruning, the season being at hand. We cannot, however, go fully into a system applicable to young pears, on the *platform* mode, from the moment of their planting; such must be reserved until the pressure of other affairs has passed. Our purpose now is to induce those who have long been disappointed in their produce, through an erroneous course of practice, to change their course in some degree; this they can at least do in the pruning. It was the custom in former days to "spur back" the spray produced all along the line of main shoots; this consisted in cutting back every young shoot to within about half an inch of its base. The consequences were that every watery shoot produced a couple or three more shoots of the same character in the following summer, and these in turn were subjected to the same operation. It is astonishing with what an amount of pertinacity our old "blue-aprons" stuck to this ridiculous mode, dignified with the title of the *spur system*. We do not say that every wall is thus treated in these "march of intellect" days; we do know, however, that some old practitioners find it difficult to escape these old traditional trammels.

Now, since the pear is known to bear freely on the two years' old shoots, if of a proper character, and duly exposed to the light during the growing season, why not reserve a portion of such spray every season all over the tree? We have done so for years, and we are not aware that any one can excel us in bearing-pears at least. Our plan is this:—at the July disbudding, or shortening, we reserve most of those annual shoots which are *peculiarly short-jointed*; this we consider the first criterion of fruitfulness: the next point is colour—such shoots will be browner than barren shoots: and the third point, scarcely inferior to the former, is a cessation of growth, or at least a tendency, before other portions of the tree. At the winter's pruning we examine these (which had been tied down to the leading shoots in July), and, reserving a choice sprinkling, we tie them down, pruning all the rest entirely away.

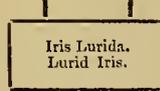
R. ERRINGTON.

THE FLOWER-GARDEN.

NAMING PLANTS.—We alluded to this subject in the fourteenth number; and we thought the subject so important that we promised to resume it. We will

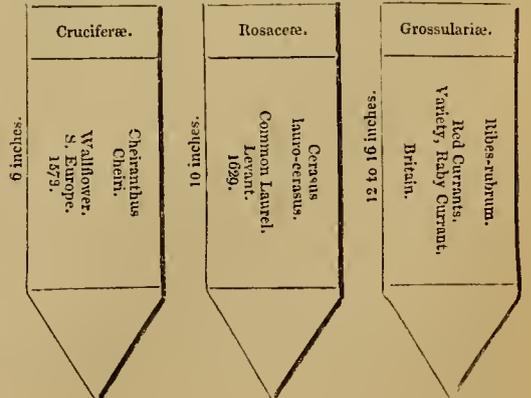
now fulfil our pledge. No one that has paid any attention to this matter will deny its great use; we need not press its importance to our brother gardeners. They are fully aware how necessary it is to have their plants correctly named, whether in the kitchen-garden, flower-garden, pits, frames, green-houses or stoves; in all good gardens, naming the plants is fully carried out. We expect and look for all plants in botanic gardens, to be completely and accurately named—that is, to find correctly, neatly, and legibly written on a lable on or near to each plant its natural order, botanical and English names, native country, and the year when it was first introduced into this country,—and in all public gardens that have any pretensions to utility, this is done. Not only are the flowers, such, for instance, as the common fox-glove (*Digitalis purpurea*), but the noble trees of the forest, such as the common oak (*Quercus sessiliflora*), and the ash (*Fraxinus excelsior*). These in public gardens are, or ought to be, labelled in the manner above mentioned; and we may venture to mention, as an example of useful and correct naming, the Public Arboretum* at Derby. Many of the trees and shrubs in the Kensington Gardens are also named, but the names are now nearly obliterated, and consequently not so useful as they might be; we hope the Commissioners of Woods and Forests will soon have them repainted, so as to be legible. Having said so much of the usefulness of naming plants, we shall now proceed to shew our amateur and cottage readers how they may put into practice such an amusing and delightful source of useful instruction. The first thing to procure for this end is a good, correct, and general catalogue; we know none better for our purpose than *Paston's Dictionary of Botany*, which contains in a small compass a great mass of information besides the mere names of plants; it may be procured of any respectable bookseller—its price is 15s. The next article is a sufficient number of labels. These are made of various materials, some of earthenware, white and brown, the latter to have the part where the name, &c., are to be written painted white, and the names put on with black paint; and if that part, after it is written on, has a piece of glass affixed so as to protect the writing from the weather, it will last several years. In this manner, and with such lables, are the plants named in the Derby Arboretum, and after ten years' exposure are yet very nearly as fresh and as perfect as they appeared the first day they were used. Some lables are made of cast iron; of this material are those at Kensington Gardens and St. James's Park, in London. Some are formed of pieces of Welsh slate, and these are very excellent and durable; they may be seen in use in the Regent's Park Botanic Garden; they are cut in the shape of a long triangle, the sharp point to be thrust into the earth; the broad end is painted black to the depth of four or five inches, two coats of paint are given them, and when that is well dried, the name, &c., are written in fair legible letters with white paint; and when this is perfectly dry, the lables are thrust firmly into the ground opposite the tree, or shrub, or flower the name belongs to. These lables are very neat and durable. In the herbaecous ground at Messrs. Henderson's nursery, Pine-Apple-place, Edgware-road, there is used a good kind of label, easily made and very durable. It is formed of a piece of wood about 4½ inches long by 3 inches wide; two holes are bored through the piece of wood from side to side, about ¼ of an inch from each end; these holes are

intended to receive two strong pieces of wire 16 inches long, about the thickness of a common quill; the wire is wedged in fast with a nail, and the whole has two or three coats of white paint given; when



this is dry the name is painted with black paint. The lable has then this appearance, is neat, and as the wood is kept from the ground, and the wire being iron, it is durable. We think this lable very good and worthy of adoption, as the materials can be easily

procured in any part of the country. For plants in pots zinc labels are lasting and useful, but they require a peculiar ink, and are not always at hand. For all common purposes wood lables are to be recommended, a bundle of common building laths will make several hundreds, and are easily and quickly made with a common sharp pocket knife, a little white lead made thin with turpentine and oil, and rubbed on with the finger, and then the name written with a softish black lead pencil while the paint is wet; this is all that is wanted for naming plants in pots, especially those under cover. The cottager can make them very conveniently by his fire-side these long evenings; if he cannot procure laths, any kind of wood will do. Make the labels of different sizes, some for pots, about six inches long; others, to name flowers in the borders, rather larger; and those intended to name shrubs or fruit-trees should be at least a foot long. We have seen very good labels for the latter purpose made of oak rods well dried and split in two. Each piece will make two labels. The inner part has to be cut smooth to receive the name and description, and the outer part also to have the bark shaved off and the knots cut off clean; the ends that are to be put in the ground should be charred to prevent their rotting; indeed, the whole label should have two coats of white paint, and the name, &c., should be done with black paint. Writing the names would be a pleasant exercise for the cottager's boys or girls, and would impress the name upon their memories. But I think I hear some of our friends exclaim, "How are we to know the natural order, botanical and English name, and native country? We cannot afford to buy botanical dictionaries and all that sort of thing." Well, my friends, do not despair; we will put you into a way by which you may easily acquire this knowledge. Let as many of you as are neighbours, and well disposed, meet at each others' houses in the evening at times, say once a fortnight, and pay a trifle each



* Arboretum—a garden of trees.

weekly to buy this book of names, then ask some gardener or other capable person to meet you; have your flowers and pieces of shrubs there at the time, with a slip of paper attached to each; your kind friend will then name them for you, and you can take your lot of names home, and having the labels ready, write for each its right name, with every other particular. If this method is followed diligently for a few months, you will obtain names for all your plants, which will be a great pleasure, as well as useful, to you, your wife, and your children.

We have given three examples, by which our friends may see how to name their trees, shrubs, and flowers; and have purposely selected three very common things, such as we believe every body knows, in order to shew every point in naming plants that ought to be attended to. Where florists' flowers are cultivated to any extent, the best way to distinguish each variety is to have them all numbered with wooden labels, with corresponding numbers in a memorandum-book kept for that especial purpose. Where time, however, is of no consequence, and the owner is so disposed, the names may be written on zinc or wooden labels; but this is a somewhat tedious operation, as every one of every variety must have its name fully written. Yet this has its advantages, for every time the name is read it is deeper impressed upon the memory, and to strangers or friends visiting your garden it is very pleasant to find your plants all named: so that, without referring to your memorandum-book, each visitor can at once read the name, and learn to distinguish the different varieties. Our amateur friends may expect shortly to have some further remarks on this subject, suitable for them, and which we trust will be useful and acceptable.

FLORISTS' FLOWERS.

CARNATION SEED SAVING.—A correspondent, who signs himself G. K., having made the inquiry,—how are carnations and picotees to be impregnated so as to produce seed? (see a copy of his letter, p. 189)—we shall proceed to state how this may be done. These flowers are, in the eye of the florist, in the greatest perfection when they are fully double, a single flower being by them accounted of no value. Now, a double flower is a monstrosity of nature, in which the parts of the flower intended for the reproduction of the plants by seed are changed by high cultivation into mere flower-leaves or petals. In proportion as this monstrosity is carried to perfection, so are the powers of the plants to produce seed lessened, or destroyed altogether; consequently, to save seed, choose such as are not quite double. The Clove pink (*Dianthus Coryophyllus*) are the botanic names of these plants. They are in the Linnean botanical class Decandria (or ten males), and belong to the Linnean botanical order Digenia (or two females). Now, we wish to inform our friend G. K. what these two terms Decandria and Monogynia mean. The first term has reference to the 10 threads with a head on each, which are the male parts of the carnations; the head is something like a little box, and contains the pollen or fertilizing dust. In the centre of the flower is a small germ, or infant seed vessel—arising out of, and above which, is a thread called the filament; upon this may be seen what G. K. calls fringed "horns." These are the female part of the flower, and not, as supposed by G. K., the male. Now, in a full double flower all those male and female parts are changed into petals or flower-leaves; and when this is the case, the germ or seed vessel does not swell and

produce seed, and all the management and protection to assist it to do so are useless. In order, then, to save seed from such kinds as are good in the florist's eye, G. K. must examine his flowers when in bloom, and such as have some pollen, to convey or apply it by a common camel-hair pencil to the two horns; and when that is done, then protection from rain or storm is necessary and useful. Some named varieties are never fully double, although in carnations we have not noticed such, but in picotees we can give one variety famous not only for producing seed but a number of excellent seedlings—its name is *Barnard's Mrs. Barnard*; we can recommend this sort as a good breeder. We trust the above will satisfy G. K.'s inquiries. With respect to the other private inquiry, we will answer it as soon as we can learn what can be done for him. The above is an exceedingly interesting subject, and to all our readers, whether rich or poor, we trust will be acceptable. The raising of better kinds of florist's flowers is a never ending source of pleasure, amusement, and, may be, profit to the practitioner. Let not the want of success even for years deter you from trying again and again; success *must* come at last, to repay you for your pleasant toil. The only thing wanting is a determination to persevere, trying first one plan and then another, until you hit upon the desired end.

T. APPELBY.

GREENHOUSE AND WINDOW GARDENING.

CULTURE OF THE TUBEROSE.—The proper name of this, the most fragrant of flowers, is *Polyanthes tuberosa*; but we must not confound the first name with our common polyanthus in the borders, although the one will readily put us in mind of the other. Whenever you see *anthes* or *anthus* at the end of a name of this sort it means a flower, and is taken from *anthe* the Greek word for flower; *poly* is also a Greek word signifying many, so that the two words put together will mean—manyflower. But the first name of the tuberosa is spelled differently, and has a widely different meaning. It is from *Polis*, the Greek for a city, and *anthe*, that is, "the city flower;" because, as I suppose, all the inhabitants of a city ought to grow it every year for their tall windows and staircases! And, surely, if they can manage that in the city, we ought to be able to do it where the air is more pure and healthy.

The first tuberosa that came to Europe was a single flower from some of the more temperate regions in India; and the double one, which we now grow so extensively, was first raised from seeds in Holland—that land of bulbs; and to shew you one of the great changes which civilization brought about, I may mention that the heavy Dutchman who first raised this double tuberosa was so selfish, that he would not part with any of the roots for many years—not even after he had propagated them in such numbers, as to have more than he could plant. He is said to have destroyed his over-stock of them, that he might have the vanity to boast of being the only person in Europe who was possessed of such treasures! I would mention his name, were I not afraid that some of his descendants might hear of the sad legacy he thus left them. Let us, therefore, turn to a more pleasant theme.

The tuberosa never flowers but once from the same root, and if it shoots up a flower-stem without producing any flowers at all, (as, I am sorry to hear, it has

repeatedly done with some of our readers), it is just the same as if it had produced flowers, and it will not even shoot up a flower-stem again next year—neither will the offsets, bulbs or tubers, which are numerous produced round the old root, do any good with us in pots—but the whole must be thrown away at the end of the season, and a fresh lot bought in every spring. A person curious for experiments, however, might grow the roots in this country, so as to flower them after the second year, as strong as the Italian roots—for they are all imported annually from the gardens of Italy. The thing has been done successfully in England a hundred years since, but they are now so cheap, no more than four shillings the dozen, that we never think of rearing them for ourselves. The way they used to nurse them in England was by picking off the strongest of the offsets from the flowering roots about the time of potting in the spring, and planting them five or six inches apart every way, on a slight hotbed, in light rich mould. Those who had a cucumber light to spare, would, of course, place it over the young tuberoses till the May frosts were over; and those who had not that convenience, would hoop over the bed with slender rods, and cover them at night with mats, and, in addition to this, others would make little neat hedges round the bed with spruce or furze boughs—the latter an excellent barrier against rats and mice. I have no doubt that thousands of such beds, for other purposes, will be made next spring. All that the young tuberoses needed, after the frost and coverings were gone, was to keep them clear from weeds, and to give them plenty of water in dry weather; and as the frost would kill the roots, the bed was duly thatched with a foot thick of straw as soon as any danger appeared in the autumn, all the leaves being first cut off, for fear they should get mouldy under the thatch, and carry the damp down to the roots and destroy them; for it would not do at all to take up the tubers then, as they had long soft roots that could not be dried or cut off without rotting the tubers; but in about three months afterwards, these roots, and the tuberoses themselves, were ripe enough to be handled without any danger, and in February they used to take them up, so as not to grow too soon to be nipped by the frost, preserving all their long roots, and placing them in dry sand, or very dry earth, till April—then planting on a slight hotbed, as in the first instance, with sheltering, weeding, watering, and thatching as before, and taking them up again next February to be planted out for flowering, always at the same distances from each other, and the top of the tubers not more than one inch below the surface. In this second season, many of them would push up their slender flower-stems from two to four feet long, and produce from eighteen to two dozens of their charming, sweet-scented flowers; and to have some indoors as well, they would take up part of the stock carefully with a trowel when the flower-buds were beginning to open, put them into pots, and, by careful watering and shading them for a few days, they would soon recover this check. Those that did not flower the first year would be very strong next season; and once the first batch came into flower, there would always be a succession afterwards every year. Every time they were taken up the offsets would be taken off them, except two or three of the strongest to be grown for stock; and when the tuber once flowered, these stock offsets would be planted separately, to undergo the same routine as their parent. There is no more trouble in all this than there is in rearing a bed of ridge cu-

umbers, and he is a poor gardener who cannot do that in England after the middle of April. Half-spent dung, from the linings of a cucumber bed, or any refuse of that sort, would be good enough to begin the young tuberoses with. Such a bed should be made in an open trench in some warm corner, packing in the dung tightly, so as not to settle much or unequally afterwards. About two feet deep of dung would be thick enough, and carried up to near the surface. When the heat became steady and not too strong, the bed should be covered a foot thick with light rich soil, and then planted with the offset tubers, leaving the crowns, or top part, an inch below the surface. The frame and light would then be put over it, and a sharp-pointed stick thrust down in the bed, to be drawn every other day for a fortnight or so, to ascertain that the dung did not heat too violently; for, if it did, it might greatly injure the tuberoses, if it did not roast them altogether. The safest way to check such violent heat is, to make holes in the bed here and there, and pour down water from the spout of a watering-pot, but not too much at a time, for fear of chilling so small a bed. The tuberoses would not require any water till their leaves were well up, and not much of it afterwards, except in dry weather. There is one point in this old way of growing the tuberoses for ourselves, which I think a great improvement on the present fashion of buying our supply of them from Italy, and that is the preservation of their roots. It does not require a prophet to foresee that if we could obtain those fine long roots, which the tuberoses makes in the Italian soil, in good preservation, the tubers would produce much larger flowers than they do at present, and in greater numbers. The beautiful old-fashioned bulb called *Tigridia*, or Tiger-flower, would answer remarkably well under the above treatment, and no doubt many other half-hardy bulbs besides.

The only secret in growing the tuberoses, which we buy at the seed shops, without the help of a pit or hotbed, is to begin early with them, say the first week in April; to strip off all the little offsets that grow in a ring round the bottom, for these must suck their nourishment from the parent tuber, and that extra food had better go to enlarge our flowers; to plant only one in a small pot of not more than four inches in diameter, with very good drainage, and, if possible, a thin layer of fresh moss placed over the drainage, for the double purpose of preventing the soil getting down among the crocks, and for supplying the tips of the roots, which are sure to work down as far as they can, with uniform moisture. They will do better with moderate watering in a steady way, than with large doses at certain intervals. The soil must be light and open, and any common soil can be made so by adding sand to it; and a little leaf mould, or the refuse of rotten wood, will both open and enrich a stiffish soil, if no better can be had for potting. This soil, or compost, should be neither dry nor wet when first used, but just to feel damp to the hand, and I am altogether against the bad practice of watering dry bulbs or tubers as soon as they are potted. So doing is just like burying a man alive, and putting plenty of roast beef and strong ale in his coffin. A root, or bulb, that will keep safe month after month in a drawer or paper bag, will surely wait a week or ten days after potting without water, or until it can make some roots or leaves to make use of the water. Its own juices, and the natural dampness of the soil, will be stimulus enough for any plant of this kind that ever I heard of, till it pushes up a few leaves above the earth. The tuberoses

is very fastidious in this respect, and if it is once swamped with water in its early progress, no coaxing will induce it to flower that season, if grown in a pot. When grown over a hotbed, where the roots can spread in all directions, it is, of course, less susceptible of such injury.

The window of a warm kitchen is the best place for the pots after potting, and even better for getting them up than a greenhouse or cold pit. If the heat should dry the soil too much before the leaves appear, it will require a gentle watering. When the leaves advance to four inches high, give small quantities regularly, and unless you see the leaves turning greenish-white at the bottom, the place is not too hot for them. By-and-by the leaves will be long enough to arch out round the sides of the pot; that is their natural way; and, to guard them from accidents, place four sticks of the size of a pen-holder round the pot, and draw a string, or piece of narrow tape, round them, and sufficiently high to support the leaves where they arch over the pot. Some persons, from not knowing better, tie up all the leaves to one stick, but they can never flower that way, because the upper sides of the leaves cannot get light enough. If the leaves look quite green, and no signs of being drawn up with too much heat or too little air, they may remain in the kitchen window, provided it is open to the sun, till the flower stalk begins to rise from the centre of the leaves, for the plants are no beauties till the flowers appear. As soon as the flower stem is seen, they must have plenty of air; and close to the glass in a greenhouse, or cold pit, would be the best place for them, but they will do very well in a good window, if the flower stems appear before the first of July. Tie up the flower stem to a neat green stick, but not too close, as it will grow rapidly at first, and might get injured from a close tie. They are not thirsty plants at any time, but they must have a little more water than usual while the flower stem is fast growing, and a little soapsuds would suit them well at that time and when the flowers appear, as I hope they will and in great numbers too; they require only to be kept a little moist. Now, after all this long story about tuberoses, I shall be disappointed if I hear of a single failure among our readers next season. The only thing else that I can think of just now, is, to get them in good time before they are picked over by the old knowing ones, who can tell at a glance the best tubers to flower well. They choose the plumpest ones, with the shortest necks, and they always try if the bottoms are sound; they also cut off all the little offsets with a sharp knife as soon as they come home, to give the more time to the wounds to dry over before potting time.

FOREIGN SEEDS.—Without the aid of a hotbed, it will be time enough to sow seeds received from friends abroad about the beginning of March; and, unless they are from temperate climates, they will be of little use for a greenhouse; or, if they have been collected by travellers, they are hardly worth the trouble of sowing. Residents in foreign parts are the only persons from whom really useful seeds may be expected, as they may have had an opportunity of seeing the plants in flower which produced them. The best gardener in the world can only *guess* what kind of flowers a plant will bear, if he only sow it in seed for the first time. If you meditate on making a present of foreign seed to any great gardener, he will take your good will for the deed; but, in all probability, he will throw all your seeds in the fire.

Foreign seeds have become an actual nuisance since travelling has become so general.

SURFACE OF POTS.—This is a good time to stir the top soil in plant pots; and as it will be much exhausted, some of it should now be thrown away, and a little fresh soil put in its place. This is a good plan even for hyacinths and other bulbs coming into flower; the fresh soil will help to invigorate the plant; and many other plants, if thus treated now, need not be fresh potted so soon as usual.

D. BEATON.

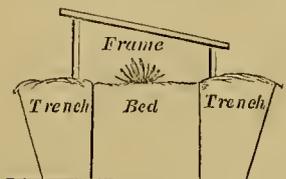
THE KITCHEN-GARDEN.

SEA-KALE.—Besides the direction mentioned in our last, respecting the production of this very useful vegetable, there is another mode of forcing it early, on the ground where it is established, by placing over the plants, pots, boxes, &c., and covering these with fermenting materials, such as stable dung, leaves, tan, fern, straw, &c. To get the shoots thus produced, sturdy, of good colour, and substance, the heat applied by such means must be regular and moderate.

There are several modes in which sea-kale may be forced, whilst growing in the hotbed where raised. Thus, after the plants have been dressed and trimmed in the autumn, the bed may be covered with a mixture of moderately sifted light earth and sand or coal ashes, two or three inches deep; each stool must be covered with a pot set down close, to keep out the steam of the dung; or, bricks or planks may be placed to the height of eight or ten inches on each side of the rows of plants to be forced, and covered with cross spars, having a space of about an inch between each two of them. The dung employed must be well tempered, and mixed for three weeks before it is required, or for four, if mingled with leaves, otherwise the heat is violent, but not lasting. When thus prepared, each pot is covered ten inches thick all round, and eight inches at the top. The heat must be constantly observed; if it sinks below 50 degrees, more hot dung must be applied; if above 60 degrees, some of the covering should be removed. Unless the weather is very severe, it is seldom necessary to renew the heat by fresh linings; when the thermometer indicates the necessity, a part only of the exhausted dung should be taken away, and the remainder mixed with that newly applied. In three or four weeks from being first covered, the shoots will be fit for cutting, and they will continue to produce at intervals for two or three months, or until the natural crop comes in. To have a succession, some should be covered with mulch, or litter that is little else than straw; this, by sheltering the plants from cold, will cause them to be forwarder than the natural ground ones, though not so forward as those under the hot dung; and by this means, it may be had in perfection from Christmas to Whitsuntide.

It also may be forced in a hotbed. When the heat moderates, a little light mould being put on, three or four years old plants, which have been raised with as little injury as possible to the roots, are to be inserted close together, and covered with as much earth as is used for cucumbers. The glasses must be covered close with double matting to exclude the light, and additional covering afforded during severe weather. Sea-kale, thus forced, will be fit for cutting in about three weeks. Instead of frames and glasses, any construction of boards and litter that will exclude the light answers as well. A common melon frame will contain as many as are capable of being

produced in two drills of twenty yards each, and with only one-third the quantity of dung. To keep up a regular succession until the natural ground crop arrives, two three-light frames will be sufficient for a large family; the first prepared about the beginning of November, and the second about the last week in December. Another mode is, on each side of a three-foot bed, to dig a trench two feet deep, the side of it next the bed being perpendicular, but the outer side sloping, so as to make it eighteen inches wide at the bottom, but two feet and a half at the top—these trenches being filled with fermenting dung, which of course may be renewed if ever found necessary, and frames put over the plants; the light is to be completely excluded by boards, matting, &c. The accompanying sketch represents a section of the construction.



Those who have but few plants, and have not a convenience of either forwarding it in a cellar or cupboard, or the means of forcing it with fermenting materials, may produce excellent blanched sea-kale in the spring months by covering the crowns with light friable earth, fine cinder ashes, old tan, or leaf mould.

If this mode of merely *blanching* (or whitening), and not forcing, be adopted, the most simple mode is to cover over each stool, sand or ashes to the depth of about a foot; the shoots, in their passage through it, being excluded from the light, are effectually bleached. Dry clean straw may be scattered loosely over the plants to effect the same purpose. But pots are by much to be preferred to any of these coverings. Butter-firkins, or flower-pots of large dimensions, may be employed, care being taken to stop the hole at the bottom with a piece of tile and clay, so as to exclude every ray of light; but these suggested by



Mr. Maher are generally adopted. They are of earthenware, twelve or eighteen inches in diameter, and twelve high. Mr. Sabine improved upon them, by making the top moveable, which prevents the trouble arising from the escape of the spreading shoots, or the entire removal of the dung at the time of forcing. Frames of wicker are sometimes employed, being covered with mats, more perfectly to exclude the light. Previously to covering the stools with the pots, &c., the manure laid on in the winter must be removed; and the operation should commence at the close of February, or at least a month before the shoots usually appear, as the shelter of the pots assists materially in bringing them forward. In four or six weeks after covering, the plants should be examined, and as soon as they appear three or four inches high, they may be cut; for if none are taken until they attain a fuller growth, the crop comes in too much at once. The shoots should be

cut whilst young and crisp, not exceeding five or six inches in height; the section to be made just within the ground, but not so as to injure the crown of the root. Slipping off the stalks is much preferable to cutting. The plants may be gathered from until the flower begins to form, when all covering must be removed. If, when arrived at that state in which brocoli is usually cut, the flower is employed as that vegetable, it will be found an excellent substitute.

But one thing should never be omitted; when the sea-kale is cut, it should at all times be cut down, that is to say the crown or stalk, a little under the earth's surface; as any part left above ground, after having been once forced, is almost sure to be affected by the weather, which produces canker, and the ensuing year the crowns will be weak and unfit for producing strong healthy shoots or heads. Another thing most essential to be observed, after sea-kale has made two or three inches of its natural summer growth, is that the shoots should be thinned, all the weak spurious shoots being entirely removed, the strongest only being left, and those thinned according to the strength of the plants. Then, if former directions are attended to, in respect to applications of liquid manure, fine, strong, clear, healthy buds will be established and matured in good season for the next year's produce. All blooming shoots should be removed as early as possible after they appear.

ROUTINE WORK.—Every available opportunity should be taken advantage of, for *surface stirring* the soil about the cabbage, cauliflower, early pea, and bean crops. Indeed, also, if possible, it should be stirred among winter brocoli, savoys, and the kale crops; for it not only is the means of preventing seedling weeds and slugs getting ahead, but it also tends to bring the surface soil into a healthy condition for succeeding crops. All ground that has been trenched already for onion and root crops, should be well attended to of frosty mornings, by routing it over with strong forks. A few of the *two-bladed onion* should now be sown in a warm corner thickly, for early drawing; and those who wish to produce large onions, and have omitted autumn-sowing for that purpose, should now sow in pans, placed in a gentle warmth, Spanish, Tripoli, or Deptford onion seed, to produce plants for transplanting on well prepared ground, when ready.

Successions of *asparagus* should be taken up, and placed on slight hotbeds or tanks; also *rhubarb* and *sea-kale* should be taken into warmth, and assisted moderately with fermenting materials, on the ground it is established on. Principal crops of *radishes*, *horn-carrots*, *peas* and *beans*, should now be sown on favourable opportunities. A few early *cauliflower* and *lettuce* plants could be procured by sowing in pans in a little warmth; and if *red Dutch cabbage* were not sown in autumn, or plants of other varieties being now short, there should be a little seed sown in the same way, and if assisted along by a little care of surface stirring, and pricked out in due season in a warm corner, to be sheltered by hoops and evergreen boughs, furze, or light covering of any kind that is come-at-able, clear strong plants will be furnished for early spring planting. Those who have *cauliflower plants* in pots should now prepare for putting them out under hand-glasses; as, if allowed to stand in pots to a later season, they are more liable to start into flower, or "button," as it is termed, and become useless. *Frame cucumbers* and *melons* at this time require careful watching, and to be methodically covered at night and aired by day, or night either, if the interior heat will allow of it;

for to establish robust health, is the main point to ensure a plentiful supply of good fruit.

G. W. J. & JAMES BARNES.

MISCELLANEOUS INFORMATION.

ALLOTMENT CROPPING.

WE now proceed to offer some special directions on this head, and, as the spring advances, we will attempt to shew the matter in various successions; for it is astonishing what a number of combinations may be made, and each good in some point of view.

The question, however, is, in a great degree, one of manure, for the cottager cannot afford in all cases to manure the whole of his plot every season; nor, indeed, is it necessary that he should do so. There are some crops which are better and safer without it, provided the preceding crop had a dressing. Of such are onions, carrots, common turnips, &c.; for, although heavier crops of the onion may be grown by high manuring, yet we have ever found them more liable to the grub when thus cultivated. The onion, too, is naturally a late harvester, and is thrown a fortnight later by heavy manuring; and this is a serious affair, for when late and gross they never keep so well; and we hope to induce the cottager to make a portion of his rent out of the onion crop. Moreover, we shall shew him how to steal a crop off the onion ground in the same autumn, a plan which we have followed for years.

To proceed with the manure-view of the question. Many cottagers rent a plot of land from their employers, or the neighbouring farmers, for the summer only, in order to grow their potatoes on fresh land; and a very good plan it would be, for both farmer and cottager, if the farmer did not charge quite so high a price for it; the competition, however, is so great, that the cottagers take such land (especially if it has been hard ploughed) much too dear. Well, the cottier has to manure this portion; for in this part of the kingdom (Cheshire), at least, the farmer increases the amount of his wheat soil by such means. The manure necessary for this purpose often compels the cottier to be rather niggardly to his own garden; we, therefore, hope to shew in due course, that much manure has been mis-applied—owing, chiefly, to the want of well-studied rotations, and how the cottager is, at present, much in the dark. In looking over our ordinary vegetables, to see which can be rendered truly profitable to the cottager, and which at the same time will chime in with rotation schemes, we find the following, which we throw into classes with titles; the titles are of course arbitrary, but will serve to point to the rotation:—

- 1st. *Cow and Pig-keeping roots*.—Parsnips, carrots, mangold-wurtzel, Swede turnips, kohlrabi, &c.
- 2nd. *Winter potatoes*.
- 3rd. *Bed Culture*.—Onions, horn carrots, dwarf cabbages, spinach, lettuces, &c.
- 4th. *Miscellaneous*.—Pease, and various other matters, all requiring more or less manure.—N.B. This class is not obliged to be *totally* distinct in character from the others: it is a sort of reserve for odd things, which would not class well with the other rotations, and will enable the cottager to widen his spring scheme of cropping, if necessary. He will want, moreover, seed beds for the various greens, for lettuces, &c.

One invariable rule we would adopt in all cases; and that is, to have one division in every year totally free of all the cabbage tribes, or the various greens. These, as before observed, if stuck in indiscriminately in all parts, lead to clubbing, or anbury, in their roots; and, indeed, in a few years they would cease to be profitable. We, therefore, think that the "keeping root" division must be the plot that is to be without any of the cabbage tribe in each year—this tribe including savoys, borecoles, cauliflowers, and brocolis, as well as cabbages and turnips.

We will now subjoin a diagram, illustrative of a course of four years' cropping, founded on the above classification. No scale is necessary, as the garden or allotment is supposed to be divided into four equal parts, whether large or small.

1849 followed by	1	2	3	4
in 1850	Winter Potatoes, no manure.	Roots, Cow & Pig, manured.	Bed Culture, no manure.	Miscellaneous, manured.
in 1851	Roots, manured.	Winter Potatoes, no manure.	Miscellaneous, manured.	Beds, no manure.
in 1852	Beds, no manure.	Miscellaneous, manured.	Winter Potatoes, no manure.	Roots, manured.
	Miscellaneous, manured.	Beds, no manure.	Roots, manured.	Winter Potatoes, no manure.

Now, it must not be understood that the kinds enumerated occupy the ground for the whole year. We hope to shew how other crops of various kinds, and in various ways, may be introduced amongst them. The above, however, are the main objects, and we thought it best to exhibit them in an unfettered state, in order to shew the principles of rotation, and how manuring matters should be carried out. We shall have to refer to the above diagram occasionally, in order to illustrate the details which we shall endeavour to work out; but, in the meantime, we must have an eye to *immediate* business.

The first things which the cottager should look to, as cropping in the new year, is how to obtain plenty of *beans* and *pease*, without dispossessing his valuable store roots of their portion of the soil. As for *pease*, we would, in general, sow a row round the outer edge of nearly the whole plot. This course, however, would require some change of crop for that outer edge; and why not, in alternate seasons, make the divisions between the four compartments or quarters? *Pease*, then, would make a substantial division. If such a plan were adopted—and we can see no better at present—there would be three rows in succession. One might be sown in the end of January, a second in the middle of February, and a

third in the middle of March; beyond this, we do not think they would prove profitable to the cottager. The outer edges of the compartments would alike offer three successive sowings, making it a point to sow none on the southern boundary. The bean crop, however, we consider to be of far more importance than the pea; for, in the first place, it is one of the best "stolen" crops that we know of. By stolen crop, a term in common even amongst farmers, we mean a crop of any kind which can be obtained without impediment to the usual course of crops.

Beans, when ripe, are a very excellent material to work up as meal with other diet for pig-feeding; and the cottager can hardly grow too many. There is one very peculiar merit attached to the cultivation of broad beans as a stolen crop, and that is, their freedom from over-shadowing branches; provided they are firmly soiled (earthbed) up, they retain their position to the very last; so that cropping, even by the bed system, may be carried on to within half a yard of their stems. Another good property we must point to, and that is, that if sown very early in order to stand until ripe, beans will not prove the slightest impediment in the way of autumn culture of other things, even almost close to the stems; for, towards August, their leaves discolour and begin to shrivel up, and the amount of shade they produce becomes daily less as they advance towards ripening.

We must now proceed to shew how a few of the broad beans may at this period be woven into our diagram scheme; and we are the more anxious to do so, as we should like to hear of a good breadth being planted by the middle of January. It will be seen by the diagram, that the compartment No. 1 is winter potatoes. We would not introduce beans here unless the potatoes were planted in raised beds, two or three rows in a bed, which is much the custom in Lancashire and Cheshire, and has originated chiefly through the cleansing character of this process with regard to the wheat crop, which almost always follows potatoes in these counties. We have no very forcible objection to this, but the potatoes must be planted rather further apart than those on farm lands, as the cottager's ground will become richer in fertile matters, and the potatoes will consequently grow more into haulm. If beans are to be introduced, here the ground should be planted with potatoes in November, or in the course of January. Alleys would be formed, which would be excavated or dug out, for covering the potatoes, which at this early period must be covered eight inches in depth; this, owing to the settling of the soil, will soon become only six inches. Things being thus, the broad beans may be dibbled along the edges or shoulders of the potato beds, about a foot apart; the long-pod would be best for this purpose, and the beans may be set in pairs about three inches apart. We would dibble them in about the end of December, putting them six inches deep. In the end of April the potatoes will want hoeing and *thoroughly cleaning*; and, immediately on the heels of this operation, some drum-head cabbage, or the thousand-headed cabbage, should be planted in the alleys, one yard apart. Care must be taken in gathering the beans not to tread on the cabbage. We shall hereafter shew how the potato ground may be made useful in September, until sown with the succeeding crop of roots in April. In the meantime let us look over the other compartments, and see if we can introduce any more beans.

Compartment No. 2, as we before observed, we would keep entirely free from the cabbage families

for one year; we must, therefore, try and grow some more beans here. Root crops are generally sown in drills at equal distances, say about twenty-two inches apart. We much prefer, however, under the allotment system, to sow all these things in what we term *double drills*; indeed we should carry out this principle extensively in farm culture for several reasons, which we must not stay to explain here.

Well, then, we advise these root crops to be in double drills, each pair sixteen inches apart, with an alley of thirty inches or so from pair to pair, and in this space we would plant a double drill of beans down the centre. These beans should be planted betimes, say in the end of January. In digging the ground for them, it would be merely necessary to set down a line at every twenty-three inches, and make a mark with a hoe or spade, and then to dig one spit on each side of this line. This being done, the beans may be set. The root crops will be thoroughly cleaned and hoed for the season in the beginning of June, when the beans would be coming in blossom; care must of course be taken to avoid injuring the beans. We would, if possible, leave these beans to ripen.

We now come to compartment the third. As to bean culture here, so various will the objects be, that little can be advised; all we can suggest is to try and get a planting of beans for succession either in this plot or in No. 4. This planting may be made in the middle of March, beyond which period beans do not produce enough for a cottager's purpose. Opportunities will occur for a row, or a couple, in these compartments, and we now dismiss the bean subject for the present.

QUANTITIES OF SEED NECESSARY.—It will soon be time to purchase seeds; and it is most important to allotment holders, to know exactly the smallest amount of seeds that will be necessary, for they are expensive, and any waste is a serious drawback in the little profits arising.

Mangold Wurtzel, per acre	5 to 6 lbs.
Ditto, for a drill of 150 feet	1 oz.
Swedish Turnip, per acre	3 lbs.
Ditto, per drill of 180 feet ...	1 oz.
Carrots, large kinds, per acre	4 to 5 lbs.
Ditto, per drill of 120 feet	1 oz.
Ditto, the horn in beds, 8 sq. yds.	1 oz.
Parsnips, per acre	3 to 4 lbs.
Ditto, per drill of 200 feet	1 oz.
Common Turnip, per acre	2 to 3 lbs.
Ditto, per 100 square feet ...	$\frac{1}{2}$ oz.
Broad Beans, per row of 90 feet	1 pint
Peas, the smaller kinds, per row of 60 feet	1 pint
Ditto, the larger classes, per row of 80 feet	1 pint
Onions, per 9 square yards	1 oz.
Leeks, per 2 square yards	$\frac{1}{4}$ oz.
Lettuce, per 4 square yards	$\frac{1}{4}$ oz.
Radishes, per 4 square yards	1 oz.
Spinach, per 90 square feet	1 oz.
Ditto, per drill of 120 feet	1 oz.
Brocoli, Cabbage, Cauliflower, Kale, Savoy, Brussels sprouts, and the green tribes generally, in seed beds, per 4 square yards.....	$\frac{1}{2}$ oz.

MOWING GRASS.—Those who desire a decent crop of hay, should now withdraw stock of all kinds from such land as soon as possible. If manure has not been applied for the aftermath, a little should be laid on immediately; if to spare, choosing such as is rather littery, and reserving the rotten manure for the

root crops. It is astonishing what a benefit even the protection afforded by littery dung is, merely in carrying over the cold winds, provided it is applied in the autumn. One great misfortune with some of our small holders of farms of about a couple or three acres, is overstocking; by which means they never get a good crop of hay. Such small holders not only keep a cow, but frequently attempt to rear young stock; and we acknowledge, that seven or eight pounds for a young heifer is certainly rather tempting. This, however, flings these holders, by degrees, out of a regular and good system, for they become compelled to graze the meadows intended for mowing too late; and their cow is, of course, not kept as she should be, when in milk, during winter.

SOOT FOR MANURE.—We may remind the cottager to be sure and take care of this valuable manure. It merely requires to be kept dry until wanted. If there is no other use for it, sow it on the mowing ground forthwith. We think it better reserved for tillage purposes, however; and, in such cases, it should not be applied too long beforehand. We have found it excellent for drill cropping, blended with a small amount of guano and gypsum. Four bushels of soot, half a hundred weight of Peruvian guano, and one hundred weight of gypsum, will make an excellent drill dressing, and will cause a very small amount of manure to go a long way. It is well, however, to mix some ordinary sand or soil with it; this reduces the caustic character of the soot, by dividing its particles, and make it go farther. Old, mellow, rotten vegetables, tan, or leaves, would be capital—too much could scarcely be added. As much as thirty or forty bushels per acre is commonly applied in farming operations. It is of much use applied to growing crops also.

THE COW AND THE PIG.

We must now begin to fall in with the design of our supplementary number—in endeavouring to furnish some useful information with regard to the cow. Such will lead to an economy in the apportionment of the soil somewhat different from the quarter or half-acre allotment.

Two prime points here offer themselves to our view, and these must be allowed to influence the whole consideration. The one is—how to secure a good winter's fodder in the shape of hay or straw; and the other—to provide a due amount of keeping roots, such as Swedes and mangold, in order to force milk after calving time, or to assist in laying in sufficient condition during a long winter, in connexion with straw, &c., whilst the cow is dry. The production of these materials will be a question for the next month; in the meantime we may render service to the uninformed, by offering a few observations of a general character.

ECONOMY OF FODDER.—Much fodder is wasted either through slovenly or inattentive management, or through using up, at certain periods, materials somewhat too good for the purpose. Thus, for a cow recently calved, and sufficiently out of danger from what is termed "milk fever," the food can hardly be of too generous a character. But for one near calving, or immediately after, the utmost caution is necessary,—indeed, many losses occur through matters of this kind, of which we have had ample proofs in our days. Strange to say, that although the dairy farmer has far more fodder of a stimulating character at command than the cottager, yet we know from experience that the cottager, at least in our part

(Cheshire), loses more cows during their calving than the farmer. And why? The farmer's stock is fed by one simple system—no petting here. But the cottager's dame, who is generally a person of thrifty habits, thinks she can scarcely do too much for the animal, and regardless of calving, or other critical periods, treats the cow on the same footing, or nearly so, as the feeding hogs. Hence the numerous inflammatory attacks which attend the calving of "petted" cows. These matters we propose to explain more at length by and by; in the meantime, we recommend much caution at such periods.

The cottager who is short of hay at this time should endeavour to purchase a little good oat straw, in order to help his hay out; more especially if his cow has been some time in milk, is in calf, and approaching the drying period. This, with some chopped mangold or Swedes, daily, will keep the cow in good heart, and enable the cottager to preserve some good hay until she calves.

Inferior hay, or any of a mouldy or flavourless character, may be rendered palatable by sprinkling it with hot water, in which a handful or two of salt has been dissolved. It is astonishing what a quantity of inferior fodder may be worked up in this way with a little of a better sort, some good old straw, &c.

If the cow is in full milk, it is absolutely necessary that she have a good diet in-doors at this period. If there be any mangold or Swedes, some should be cut up twice a day, and given with some good hay. Our practice is, to slice the mangold very thin, and sprinkle a handful or two of bran amongst it, shaking the whole together. In fact any sweet meal, such as Indian corn, will answer the purpose well. Rough carrots or parsnips, not worth the preserving, may occasionally be sliced with the mangold or Swedes.

PIGS.—If the cow is either dry, or about becoming so, some of the root-crops may be spared for feeding swine. Mangold, Swedes, parsnips, and carrots, are all excellent materials for the pig, more especially if boiled, and where a cow is kept, if whey or butter-milk is added, together with, of course, some meal. We use Indian corn meal, which we obtain from Liverpool for something less than twenty shillings a "load," which is about four bushels in bulk. We do not think that anything can be more economical than this; much, however, depends on the situation, and sometimes greater facilities exist for obtaining barley-meal, oatmeal, &c. &c., of which we shall have more to say in succeeding supplements.

In concluding, let us urge upon the cottier—remember the old saying, "*warmth is half meat.*" Indeed, a warm bed of dry straw will render less food necessary, and general cleanliness will promote health in the animal, and the increase of the manure heap.

MY FLOWERS.

(No. 13.)

The rose thrives best in a rich, strong soil. Moss roses prefer a cool soil, and the white rose will not do well unless it has been budded on a dog-rose.

Roses form many beautiful objects in a lady's garden, and give little trouble. A selection might be made which would enable us to possess them from the early spring to a late period in the autumn—and, indeed, the China rose so totally defies the cold of winter, that even in that inclement season we may enliven the work-table with their delicate flowers.

A pillar of roses has a charming effect, and may be made without much expense or difficulty. Three

or four tall fir poles placed in a striking situation, within a few inches of each other, and united by a few cross sticks, to form a sort of trellis, will be quite sufficient, as the roses will soon cover it, and conceal its rough workmanship. Three or four rich-coloured roses planted round it—or more, according to the size of the frame—and pruned judiciously, produce a splendid effect, and are well worth some care in the selection. A column covered with some of the following roses would be the most beautiful ornament a lady's garden could possess,—viz., *Brennus Blarii*, *Belle Parabere*, *George the Fourth*, *Fulgens*, and *Coccinea Superba*. But where ladies wish to avoid trouble, and sometimes expense, in procuring varieties, lovely effect may be produced by planting the dark-flowering *China rose*, the *white cluster*, and the common *China*, round the pillar or column, adding, as opportunity offers, any fresh varieties that may fall in our way. Roses for pillars require to be strengthened and enriched by manure laid freely over their roots, on the surface of the soil. This should be done in winter, and again just before the flowering season; for they require to have the soil moist when in flower, and will also bloom for a longer period when this is attended to. The unsightliness of this plan may be prevented by laying moss thickly over the manure, and placing flint stones over that again, to keep the birds from disturbing it in seeking for worms. This will give it a more pleasing appearance than by covering the roots in any other way, and enable you to season the top-dressing without any difficulty.

Another way of placing poles to support roses, is by fixing them in the ground at equal distances, two or three feet asunder, and joining them at the top somewhat in the shape of a pyramid. Two different coloured roses might be placed at the foot of each stake, and the effect would be very good, provided the garden is large enough to admit of these kind of objects; but in small gardens care and judgment is required, that they may not be crowded with *devices*, which give, in small spaces, an air of Cockneyism, and lose all their beauty. Country gardens sometimes contain trees, such as the *Mountain Ash*, *Acacia*, *Birch*, &c., which might all support climbing roses, and enrich the general appearance very much. By scooping out the soil at the foot of the tree, and replacing it with rich earth to receive the rose, covering the surface with manure, and attending to the process of pruning, a very short time would suffice to alter the look of a neglected garden, and make it exceedingly gay.

In small gardens, where we are obliged to adopt strait walks, one of the prettiest contrivances to display the rose, is a trellis on each side of a walk, about a foot and a half within the borders. It should be a lightly-formed trellis, five or six feet in height, and the roses should be planted at even distances, not very far apart. The trellis I have seen was covered with small white cluster roses, and this I think diminished the effect, for a variety of colour would look far prettier, and if possible a succession should be arranged, so that the trellis should remain for some time in a blooming state. Yet even as it was, the effect was lovely; and I shall not easily forget how much I was charmed with it. In the vicinity of towns, where ground is scarce, a double trellis from the garden-gate to the door would be pretty, and the unavoidable formality overlooked. Town gardens might be beautified in this way, according to their size and position; for a trellis will not injure anything by its shade, or take up un-

necessary room, and the more we crowd our gardens with these lovely and delicious flowers, the more their general beauty will be increased. Many very beautiful flowers would weary us, if we cultivated them only; but I do not think that either our eyes or hearts would weary of the rose. It reminds us of that glorious time when "the desert shall blossom as the rose," that graceful image chosen to express the beauty and fragrance of the Church of Christ—thus again leading our minds from earthly to heavenly things.

January is the proper time for pruning roses in general. I say in general, because there are some exceptions. In bushes the shoots should be annually shortened to nine inches; this produces much wood and flowers. If roses are left unpruned till the spring shoots are about an inch long, and the old wood is then cut back to *below* where the new shoots had sprung from, flowers will be produced some weeks later than if pruned at an earlier season, and thereby a succession is secured. Climbing roses should not be much shortened in height, but every year the stems should be reduced in number, when they exceed five or six, as they will then shoot more richly and vigorously. Four years' old wood should be cut out of every tree and bush. The *Yellow Banksian rose* must on no account be touched with the knife at this season, but be pruned immediately after the blooming season is over. To retard the blooming season, prune back when you can just see the flower-buds.

Cultivation is necessary to plants, and so is *pruning*. How few plants and trees there are that do not need the knife, that would not run into wild disorder, and bear weak flowers and worthless fruit without it. While we, in our finite skilfulness, clip, and head back, our choicest plants, or cut out vigorous stems that *seem* so promising, knowing that we are thereby strengthening, beautifying, and enriching them, let us learn how good, and wise, and merciful, are those sharp deep strokes of the heavenly Husbandman, that cut down our hopes, thin out the blessings our affections cling to, and sever us from so many objects that would cause our hearts to run into unprofitable wildness, instead of dedicating all we have and are to the use of Him who has planted and nourished us.

When we fear the knife's keen edge, let us think of our rose trees, and learn a salutary lesson from them.

The *Yellow Banksian rose* is one of the most elegant climbers I know, and is well suited for the wall of a mansion, as well as for that of a cottage. The finest I ever saw completely covered the front of a fine old moated residence in *Essex*, and the effect was really exquisite. The house seemed as if powdered with gold, and the grave and somewhat gloomy style of building was enlivened, without our feeling that the decoration was not in character with the place. Ivy, or evergreen thorn, are sometimes too dark and heavy in their appearance to be desirable in gloomy situations, and in this case I can recommend the *Yellow Banksian rose*, for I have seen its beauty and its propriety in such situations.

Climbing roses of every colour and shade may be selected for training against walls or houses, but I always prefer the most decided colours, as producing the best effect; deep crimson, bright scarlet, and yellow roses mix well, and look strikingly brilliant as they interlace each other. Perfectly white roses contrast well with the deep colours, but I do not so much admire pale pink or blush, the effect is seldom rich, which is of the greatest consequence in a

garden. In Nature, strong contrasts and glowing colours are ever agreeable to the eye; nothing offends us there. But in art, how displeasing they are, and how essential it is to soften, and blend, and subdue them! This is a striking proof of the perfection of God's works. The more we study them in the majesty of creation, the more we shall feel the poverty and insipidity of man's devices, and shall cease to wonder how it is that scarlet, and yellow, and green, should be so lovely in the flower-bed, and so offensive to the eye when jumbled together in a dress or a drawing-room. The hand of God throws together in rich magnificence the most opposing colours—yet how harmonious they are, when issuing from the loom of the Creator! when He has called them forth, and lighted them up with the beams of a summer sun! Whoever enters a glowing flower-garden, must surely feel and acknowledge this.

Climbing roses, like the ivy, form a most beautiful undergrowth among trees. They must be planted with care, and the earth loosened for some space round them, as in these situations it is generally hard and full of roots. Peg down the branches as they advance, so that they may root, and throw out their sprays thickly around in sportive luxuriance. If trees stand very close together, of course the rose will not thrive; but there are many spots where grass grows well that will not admit of flowers in general, and here the rose will spread, and flourish, and look lovely. Two or three should be planted in different places, and of different colours, and then they would intermingle their blossoms, and give a very gay appearance to the ground.

I do not admire standard roses, they are insufferably stiff and dull; but among shrubs, where rose bushes would make no appearance, they do well, and their ungraceful forms are concealed. In borders or on lawns they are, I think, most ungainly; but I have often thought that if climbing roses were budded on standards, instead of looking like house-maid's brooms, as they now do, the sprays would wave gracefully down, and fall like a drapery round the stem, which would entirely change their stiff, awkward look, and make them highly ornamental. I should like to know whether this plan has ever been adopted.

Many persons object to training roses and other creepers against the walls of their houses, particularly when they are faced with cement or built with stone; the nails injure and deface them. This may be entirely prevented by placing a light framework of very narrow pieces of wood, not thicker than one's little finger, against the wall, as high and as broad as you choose the plants to spread. The trellis must be crossed to strengthen it, and to enable you to train the branches in all directions, but the squares may be as wide as you like, and, of course, the larger they are the less wood-work will be necessary. This plan preserves the wall from much or indeed any damage, and if painted green gives a warm and verdant look, even before the creepers have reached any height; and, if it is painted the exact colour of the house, will scarcely be noticed at all; but paint must be used, to preserve the wood. The branches and shoots must be tied to the trellis with string or strips of matting, and this is far less unsightly than the shreds usually employed, which disfigure light creepers even when in leaf, and in winter have a very frightful look on the bare walls.

The small, highly-scented, Scotch rose, is a very lovely member of this numerous family. Its blossoms and leaves are so small, and it has such a crumpled

look, that it does not strike the fancy at first, but its fragrance soon wins regard and makes it a great favourite. I have seen this rose formed into large round balls, by constant and careful clipping; and, although I have an aversion to formality, I admire it when thus shaped exceedingly. The little delicate blossoms nearly cover the ball, and it has a pleasing as well as novel effect.

An entire bed of roses has a very rich and gay appearance when neatly pruned and clipped, so as to give it a dome-like shape, with a standard in the centre by way of finish; but let its head only appear from among the surrounding foliage. The rose is so easy to manage, so docile, and so ready to adapt itself to our wishes, that gardens might be far more pleasingly arranged than they are, if we would give up striving after difficulties, and improve possibilities. We long after delicate, troublesome plants and trees, disregarding those that cheerfully offer us unrivalled charms, because they are common and old-fashioned. This is not taste, but it springs from something more than want of taste. Are we not in other things too apt to overlook those blessings we possess, and those means we might so usefully employ; and crave, like children, for what we cannot have, or that would disappoint us if we could? Let us train our roses, twine our honey-suckles, prune our wild straggling creepers, and enjoy their luxuriant sweetness with quiet, thoughtful minds. The book of Nature has a chapter for every one of us, and by observing how much the simplest and less esteemed flowers might add to the enjoyment and embellishment of our homes, we may be led to feel that "common" daily mercies and means are far more wholesome and good for us than all we weary ourselves to obtain. Let us *always* remember this.

NEW HARDY AND GREENHOUSE PLANTS WORTH CULTIVATING.

BRISTLY CHÆTOGAстра. (*Chætogastra strigosa*).—This greenhouse plant was obtained by Messrs. Veitch, of Exeter, from Guadaloupe. Its greatest height is eight inches; and its numerous bright crimson flowers are fully open in August. It is propagated by cuttings of the half-ripened wood, planted in light soil or sand, under a glass, and with a gentle bottom-heat. The best soil for it is made of leaf-mould and sandy peat in equal quantities, with a little light garden soil added. The pots must be well drained.—*Paxton's Magazine of Botany*, xv. 265.

NEUMANN'S PASSION-FLOWER. (*Passiflora Neumannii*).—A hardy hybrid, named in honour of M. Neumann, of the Jardin des Plantes, at Paris. It very much resembles the common Passion-flower, blooming in August, thriving in a light garden soil, and being propagated the same as the plant last mentioned.—*Ibid.* 270.

KAMTSCHATKIA STONECROP. (*Sedum Kamtschatkia*).—This perennial, native of the snowy region of which it bears the name, is a hardy ornamental plant, first cultivated in England in 1846. Its flower-stems are not higher than eight inches, and it blooms during June and July. Like other succulents, it will thrive best in the driest soils; for, as Mr. Maund observes, "they have a life-preserver wrapped about them—not a protector from the sea, but from the sun. This is their cuticle (or outer skin), which admits of the passage of moisture from within as well as from without, but in a due and definite proportion in every plant."—*Maund's Botanic Garden*, No. 1155. [The flowers are

yellow, tint with scarlet. It is easily propagated, either by dividing the roots or by cuttings; and it will thrive on any light, well-drained soil, or on rock-work.—ED. C. G.]

NEW VEGETABLES.

BEAN.—*Dwarf crimson-seeded.*—From Messrs. Vilmorin. This is probably a cross between the Dwarf Fan and the Violette, mentioned in our list of the bean varieties, at page 60. Height one foot; pods roundish and 3 inches long; seeds crimson. It does not appear to be in any respect superior to the Dwarf Fan, but, like it, is excellent for mixed cropping.

LEEK.—*Large Rouen.*—(Poireau tres-gros de Rouen).—From Messrs. Vilmorin. Larger and greener than either the London flag or the Netherlands leeks. Well deserving to be cultivated.

BEEF.—*Barrot's New Crimson.*—From Mr. Glendinning. Probably a sub-variety of the Castlenaudary, than which it is rather larger, and less liable to fork; but, like it, the leaf-stalks are yellowish. It has been grown in the Horticultural Society's Garden, and there pronounced to be "The best variety known."—*Hort. Soc. Journal*, iv.

CELERY.—*Cole's Superb Red Solid.*—Raised by Mr. Cole, gardener to H. Collyer, Esq., Dartford, Kent. Usually, each head weighs 6½ lbs. Colour good, and said to be excellent.

OLEANDER SCALE.

HAVING lately received a fine oleander as a present, which was much infested with the scale, I have succeeded in cleansing it and bringing it into a healthy state, by merely using a pail filled with luke-warm water, and with a fine sponge thoroughly washing every leaf on both sides; regularly watering it every day also, when the weather has been sufficiently dry. It is about six or eight weeks since the plant was washed, and there is not the least appearance of the return of these destructive insects. They are, I believe, chiefly produced by a dry heat, which, above all things, is most distasteful to this elegant greenhouse shrub.

GOOSEBERRIES AND RHUBARB.

IF your notice of the largest gooseberries, grown in 1848, is correct, the largest *Companion* was grown here by Thomas Rowsor, viz., 28 dwts. 3 qrs. We have here, also, John Baker, the raiser of *Turn Out*; he is an old veteran in the gooseberry growing. I have heard of him carrying a bag of deer's dung four miles upon his back to make liquid manure with. It is very interesting to see the fruit (gooseberries) on the trees just before the exhibition. This neighbourhood is famous for gooseberry growing, but many of the growers are very dishonest.

My partner, W. Bailey, has raised a fine variety of rhubarb, "*Monarch*," from the *Early Pontic* and *Victoria*; he has another very fine one not yet out, from the same parents.

Jos. BALL, Longton Farms, Potteries.

LIQUID MANURE.

IN your editorial remarks, at the end of mine, on the "Culture of Celery," you say by fixing ammonia in liquid manure, we suppose Mr. Turner means adding a little oil of vitriol (sulphuric acid) to the liquor obtained by dissolving sheep's or deer's dung

in water. I beg to say, I either mean sheep's or deer's dung; or, in fact, any other dung or liquid that contains ammonia.

My conviction is, that we, the "gardeners of England," are not alive to the importance and utility of many valuable liquids, which we suffer to be thrown away as useless, or worse than useless, which, if properly understood and applied, would be found highly advantageous in garden culture.

The Chinese are, I believe, a century before us in these matters. I was much pleased with the anecdote that bears on this subject in the "COTTAGE GARDENER," (page 144). I have acted on that, or a similar principle, some time—I think with advantage to myself.

I have a large cask, which holds 70 or 80 gallons, placed at a respectable distance from the house. I have put into this cask all the bed-chamber and other slops that are made about the house, including the dish-washings, soap-suds, &c. When the cask is near full, I take ¼ lb. of sulphuric acid (it costs about a penny), and pour this into the cask. Effervescence (great bubbling) will take place, and keep up for a day or two. When this has ceased, the ammonia is "fixed," (has united to the sulphuric acid,) and may be thrown on the manure heap, and covered with a little manure, or I throw it on my heap of vegetable refuse, as I think it not only has a tendency to destroy insects, but makes the refuse sooner ready to be applied to the manuring purposes for which I want it. Either in the spring or summer I make an addition, by putting a little manure to the slops before-named, then add the sulphuric acid, and when the effervescence has ceased, I apply it to anything I wish to stimulate, sometimes diluting with a little water where I think it would be too strong for the purposes wanted. I do not stand alone in this matter,—the editor of the *Midland Florist* (in the January number), in answer to a correspondent, who asks—"what is the best method to dispose of liquid manure during winter?"—says, "we should advise the ammonia to be fixed, it may then be thrown over the soil, or vegetable refuse, and soil again be thrown on the top. We are fully persuaded that every person who is at all alive to the importance of fertilization of the soil, may gain much by paying attention to the subject of liquid manures. Occasional doses to the roots of fruit-trees would be serviceable."

Jno. TURNER, Neepsend, Sheffield.

RAISING CARNATIONS FROM SEED.

I AM told that if a flower is properly impregnated, it will drop its petals in twenty-four hours afterwards, and the pod will begin to swell. I am a working man and an amateur florist, and have grown the carnation and picotee for some years, and have always been successful in the blooming of them; that is to say, I have produced flowers that would not have disgraced any show in England, but I have always failed in obtaining seed. This last season I let all my flowers stand for seed; placed all the carnations at one end of the stage, and the picotees at the other; felt the pods, some of which were hard and seemed to be swelling; cut off the decayed petals; and let the pods remain on until the flower-stems were quite dry and withered, but not a single seed was in any of them. I have plenty of bees, flies, and other insects, in my garden, and I should have thought that they would have caused some of the flowers to be impregnated. I certainly have never taken the trouble to dissect either a carnation,

picotee, or pink, not liking to destroy one of my favourites while in their most beautiful state, but the most common observer must have seen the horns growing out of those flowers, which I have always considered to be the stamens or male organs, but I never saw any pollen upon them.

If Mr. Appleby will go into the detail of this subject, and enlighten me upon it, through the medium of the COTTAGE GARDENER, I shall esteem it a favour, and will be gratefully obliged to him for it.—G. K.

[Our correspondent will see that his request has been complied with.—ED. C. G.]

LANCASHIRE GOOSEBERRIES.

IN consequence of some remarks on this subject in page 114 of THE COTTAGE GARDENER, many of your subscribers have been induced to send into Lancashire for a supply of these excellent fruit-trees, and I advise those who have done so, not to plant them at this season of the year in the situation where they are intended to remain, but in some sheltered spot, reducing their branches to three in number, each of them about five inches long, and arranged so as to form a triangle. Plant a few early potatoes amongst them, and let the trees remain until September, by which time they will have sent forth some prime shoots, but only one shoot must be allowed to grow from each side of the three branches. The trees should be planted about three inches deep, placing the roots, which must be pruned and shortened, free from each other; and near to the ends of the roots, make a small ridge of manure around them. Close up the whole with fine earth, and put some old cow or horse manure on the surface. If the season be dry, water them until the last week in September, and then remove them to the situation in which they are to remain, which may be done with little injury to them, if they are re-planted as before directed, and watered at the same time with a little liquid manure. By this means, some fine fruit may be expected the following year. The branches which are cut away at the first planting should also be planted at the same time, with a little moss at the lower end, and in a rather inclined position, as they are found to root better thus than when placed upright. Keep them well watered with liquid manure, in a shaded situation—and, at the proper time, I hope to renew my observations on the subject.

M. SAUL, *Garstang.*

THE BEE.

(Continued from p. 141).

FOR the sake of those who have not made the natural history of the bee their study, I would state that a colony of bees contains three kinds: First, the queen, the mother of the whole hive; 2ndly, the working, or female non-breeders; and 3rdly, the drones or males, who do not work, have no sting, and are seldom found in hives but in the summer time. These three sorts are hatched in three kinds of cells built by the workers. The honey-bee is found in all the five great divisions of the world, and is the only insect that lays by a winter store.

THE QUEEN BEE is almost an inch long, her tongue shorter than common bees, and her wings proportionably less. She does not gather honey, propolis, or farina. She is of a deeper colour above, and rich tawny colour underneath: her antennæ possess an

exquisite sense of feeling; her legs are shorter, and her proboscis slenderer than the workers; her sting is bent, and it is probable she never uses it, but against a rival queen. She has no baskets on her hinder legs for farina; has an ovary which contains above 5,000 eggs at once, and she lays in the course of the summer 50 daily for two months, and may lay, it is said, 12,000. The eggs which are to produce queens, are placed by her in larger round cells made for the purpose, and the maggots are fed upon royal food adapted only for their use, which appears like jelly. The royal eggs pass in three days into maggots or larvæ, and in five days more the bees close the cell; in 24 hours, the embryo queen spins a cocoon. On the 12th day she becomes a nymph, in which state she passes 4½ days. On the 16th day the perfect state of queen is attained. It is to be observed, that while workers and drones spin complete cocoons, the royal larvæ make imperfect ones, covering only the head and fore part of the body, and thus leaving themselves exposed to the mortal sting of the first hatched queen, who seeks the destruction of those who would become her rivals. When she destroys all the larvæ in the royal cells, the working bees are quiet spectators. If the queen is confined to the hive 20 days, and afterwards permitted to fly abroad, she only lays the eggs of drones, and no other kind as long as she lives. In this case her instinct suffers, and she lays her eggs indiscriminately in various cells. When this is the case, her abdomen becomes so large as to incapacitate her from flying, and she loses all animosity to her rivals. Thus Kirby remarks, "that she seems to own she is not equal to the duties of her station, and can tolerate another to discharge them in her room."

The eggs laid in workers' cells produce small drones, by reason of the maggot being compressed and expansion prevented. Whenever the queen begins to lay male eggs, the bees always construct royal cells. When the queen lays drone eggs in royal cells, the workers are deceived, and treat the maggot drones as if they were young queens; but if fertile workers lay their eggs in royal cells, the bees never fail to destroy them. The queen always puts to death prolific workers whenever she finds them out. She never leaves the hive except to meet the drones in the air, which is only once in two years, or to lead out a swarm when the hive is too crowded for its inhabitants. Forty-six hours after her first expedition she begins to lay eggs, and for eleven months only lays workers' eggs. In May, an old queen lays a great number of male eggs, and never leads out a swarm until she has finished all this kind of egg. All swarms after the first are conducted by young virgin queens. On the following day, if the weather permits, they take their aerial excursions, and this is usually when five days old. Mr. Huber deprived a queen of one of her antennæ, without further apparent injury, but when she was deprived of both, she was much deranged, and dropped her eggs at random. He put another queen into the hive, which had been deprived of both antennæ. He observed that these queens had lost all natural animosity to each other, and that both endeavoured to leave the hive. It is difficult to say what organs of sense are combined in the feelers of a queen bee. God has inspired queens with sufficient instinct to know the species of eggs which they are about to lay, and to deposit them in suitable cells—namely, drones in the larger, and workers in the small cells. A queen will not suffer any rival in the hive, but will kill any queen which may be introduced, or die in the fight; but working bees never

use their sting against a queen bee, either their own or one introduced.

The queen does not commonly feed herself, but is fed by the working bees. When bees have lost their queen, they will not admit a stranger, unless 24 hours have elapsed since the loss of their own queen. The old queen always conducts the first swarm, but never quits the hive before depositing eggs in royal cells, from which other queens will proceed at her departure.

The queen sometimes penetrates the cells of the males, and continues very long motionless in them. She has power to utter a sound, at which the bees become motionless. In the swarming season the bees will not let the queen kill royal larvæ, and this contention is the ultimate cause of swarming. When the queen is taken out of the hive, for some time it is not perceived; but in about two hours the hive becomes a scene of tumult. On returning her to the bees, they become quiet almost immediately.

If an egg of the working bee kind be placed in a royal cell, and the maggot fed on royal food, the egg will become a queen; and in this way the bees form a queen, when the old one has by some accident lost her life. If worker maggots under three days old have their cells enlarged, and are fed upon royal food, they become queens. If there be no young brood in the hive, the production of a new queen cannot take place, and the hive will come to an untimely end. This transformation may appear strange, but changes take place according to circumstances in other animals. Thus, when a cow has two calves, and one of them is a female, she is generally barren, and is called a Free-martin. I believe this is also the case with human beings. Scantiness of space and food prevents the development of the ovaries. If the larvæ of the working bee be fed upon royal food without having the cell enlarged, they become fertile, but only to produce drones. They are not indifferent in the choice of cells, but will use smaller when larger are not to be had. In this case, small drones are the consequence. Thus working bees have the germ of an ovary, but it does not expand, unless the bee has received royal food while a worm.

In the operation of laying, the queen puts her head into a cell for a second or two to see if it be empty, and then lays an egg, which is attached to the bottom by a glutinous substance. The royal egg attains the winged state in sixteen days, the worker in twenty, and the drone egg in twenty-four days. The egg is of a slender oval shape, and, like a bird's egg, it has a large and a small end. In a late swarm the queen does not lay her eggs in forty-six hours as in early swarming, but she does not begin until the following spring. Usually the queen lays only one egg in each cell, but for want of cells three or four have been found in one. In this case, the workers remove all but one. Huber confined a bee where there were only cells of drones, but she tried to make her escape, and at length dropped her eggs, which were eaten by the workers.

THE WORKING BEES.—The body of a working bee is about half an inch long, blackish brown, and wholly covered with hair, to assist in collecting farina from flowers. The head is of a triangular shape, with two large black oblong immoveable eyes, thickly studded around with hairs, to preserve them from dust. There are also three coronetted eyes on the crown of the head in the form of a triangle, and appropriated to upward vision. The bee is furnished with two antennæ, whose extremities are tipped with round knobs, very sensible organs of feeling. It has

four wings, the under pair smaller. Their teeth serve as tools in working wax. The proboscis with which many insects are endowed, in the bee is composed of two pieces connected with a joint; so that, when not wanted, it is doubled up and lies secure under a scaly pent-house. It is admirably adapted to extract juices from flowers. Its abdomen is divided into six scaly rings, which shorten the body by slipping one over the other. It contains two stomachs, the small intestines, the venom bag, and the sting. Paley remarks, "the action of the sting affords an example of chemistry and mechanics:—of chemistry, in respect to the venom which can produce such powerful effects; of mechanism, as the sting is not a simple but a compound instrument. The machinery would have been comparatively useless, had it not been for the chemical process, by which, in the insect's body, honey is converted into poison—would have been ineffectual without an instrument to wound, and a syringe to inject the fluid." The honey-bag is the size of a small pea. In this bag the bees fetch water, to mix with the farina for feeding the young.

The sting of a bee will pierce a goat-skin glove. It penetrates human skin more readily than the finest point of a needle. The sting consists of two piercers conducted in a groove. The piercers are serrated on the outward edge, and can be thrust beyond the groove. The serrated edges prevent the bees from disengaging themselves, and they generally fall victims to their own attack, by leaving behind their sting and part of their viscera: why they are thus sacrificed appears strange, and I have nothing to offer on the subject.

The bee will not commonly use her sting but near the hive, and the workers do not use it against each other, but only their pincers.

It is stated by Wildman the elder, that bees labour night and day; part reposing in the night, and part in the day. Paley observes, "the harmless plunderer rifles the sweets, but leaves the flowers uninjured." The labourers greatly exceed in number the other kinds, and in winter are the only kind, with the exception of one queen. These construct the whole hive, and are smaller than the queen or males. They are all females in construction; but when they breed, which is seldom, their eggs only produce drones. The queen alone is the mother of the workers.

The number of labourers varies from three to nine thousand.

Reaumer found that 336 of them weighed an oz., and that 100 drones were of the same weight.

Butler found 280 of them weighed an oz.

Wildman 308 " " "

Keys 290 " " "

The writer of this lecture 240 dead bees.

Hunter wet his bees to make them torpid, and found that a pint held 2160

Keys says, "a pint will only hold 1830."

Bees bred in old hives are smaller than those bred in new; this will explain the difference in weight and measure, in the statements of various writers.

Many animals have the power of regurgitating (chewing the cud), some for the sake of better digestion, as cows and sheep; crows and pigeons to feed their young; but the bee has it to deposit her store in the hive. The reservoir for honey is on the left of the stomach. Any one accustomed to bees will observe that they are capable of making several sounds. What they make when flying they can vary at pleasure. It arises partly from the wings, but if the wings be made to stick together with any glutinous substance, it is still found that a bee can make a

noise, and even if the wings be cut quite off. Before swarming, it is said that there is a sound to be heard, the same with (A), an octave higher than lower (A) of the treble of a piano-forte. When colonies of bees intend to emigrate, scouts are sent out to find a new habitation. Hollow trees obtain their preference, when they can be found; and a strict examination is made of them, to determine whether they are fit for the purpose, and this is done by a continual succession of different bees for various days. The maggots which are to become workers are fed upon farina of flowers, which is collected in great abundance in baskets on the legs of the bees in the warm months. It is stated by Reaumer, "that 100 lbs. of farina are brought into the hive in one year." This is only used for the purpose mentioned, and is not formed into wax, as was once ignorantly presumed; but wax is formed from honey by a particular elaboration in the stomach of the bee.

Swarms of bees confined by Huber, and fed only on liquid sugar, produced wax; as did another swarm fed upon honey only. The bees fed upon sugar produced more wax than those fed upon honey, so that it is particularly desirable to feed bees upon sugar when newly hived, in order to assist the bees in the formation of wax.

If we slit down a cell of farina, we commonly find it composed of layers of different colours—deep orange yellow and brown. When a bee carries farina into the hive, she puts her hind legs into the intended cell, and then brushes off the farina with the point of her tail from both legs, and the two pieces of farina may be seen at the bottom of the cell: another bee then enters and works them down, leaving a smooth surface: this latter operation takes about five minutes. Bees collect farina only from the same kind of plant from which they begin to take their load. Thus they do not contribute to produce hybridous plants.

Bees are clean in their own personal acts, but are guilty of the reverse with respect to the cells of the maggots; so that in time the cells become useless by the accumulation of filth, and old hives are broken up from this circumstance. When the breeding season is over, the bees fill the cells in which the larvæ were hatched with honey, and seal them with wax, as they do all other cells. This sealing keeps the bees from daubing themselves, and the honey from spilling.

In order to maintain the hive at a proper temperature, one or more of the bees are employed in fanning or ventilating with their wings at the door. In a populous hive the temperature is from 92 to 97 degrees. A great many bees in the inside, on the floor of the hive, are also employed in fanning, and they turn their heads to the entrance while thus engaged. As soon as a bee is laden, she always flies in a direct line to the hive, and this is the way that persons who live in the woods of America discover the nests of wild bees. A plate of honey, or liquid sugar, is placed on the ground, which soon attracts the bees, who having filled themselves, fly straight to the nests. The hunter secures one or two bees, and having walked a few hundred yards at right angles to the course of the bees, lets the confined bees escape, observing their course by a pocket compass. Where the two courses meet, is the spot where the nest is situated. Huber was of opinion "that the radius of the circle which bees traverse does not exceed a mile and a half, but that it is probable they do not fly far. Bees having the thorax painted did not return, if he carried them for twenty-five or thirty minutes from their dwelling." Pliny, says, "Bees

are put into boats in Italy, and carried up the rivers in the night in search of fresh pastures. In Upper Egypt, boats are filled with hives in October, and proceed slowly down the Nile to afford fresh pasture, until they arrive in February near the sea." Perhaps something of the kind may be done on our rivers, and also on our canals, if the tonnage would not take away all the profit. Bees have memory, for if they are fed in any particular spot one year, they will return to the same place the next year, though no food is given them.

Dr. Butler was of opinion that bees only live one year: Thorley says, "two summers;" and Lord Bacon speaks of an instance of a bee living seven years. Huber knew a queen for two years; but queens do not labour, nor use their wings, but very sparingly. In July bees are seen with ragged wings; but in September they are no longer to be observed. We hope bees do not drive away their aged members.

(To be continued.)

CATCHING GARDEN MICE.

AFTER planting my bulbs late in the autumn, I found nearly every morning one or more had vanished during the night, and the hole in which it was placed exposed. Thinking it was the work of mice, I put a quart jar in the middle bed up to the rim in mould, and laid a little wheat round it, and half filled the jar with water; almost every night since I have caught one of those destructive little animals, and frequently two or three. I am quite aware this is no *new method*, but a very excellent one I am sure it is.

E. BOUFIELD.

SCRAPS.

BALM OF GILEAD (*Dracocephalum canariense*).—This native of the Canary Islands was first cultivated in England by the Duchess of Beaufort, in the year 1697. Miller says it was called Balm of Gilead on account of its fragrance; but we quite agree with Mr. McIntosh, gardener at Dalkeith Palace, that we cannot account for the superstition among northern spinsters, that if they plant this flower their spinsterhood will continue for life.

WHAT INFLUENCES THE FLAVOUR OF VEGETABLES? As far as we have been able to observe, it is an axiom without exception, that vegetables grown on soils most abounding with matters suitable for their food are always the best flavoured, provided the situation be favourable.

Schluber says, that the peas grown upon a soil manured with lime or marl, boil better, and have a superior flavour than those on a dunged soil.—*Gard. Chron.*, 74. This, we think, is not correct, unless the soil was sufficiently fertile to bear a good crop without the application of any manure. Lime, or superphosphate of lime, is a good addition to the soil on which the pea is grown, but the produce would be very indifferent, both in quantity and quality, if there was not an abundance of decomposing organic matter in the soil.

The same distinguished chemist proceeds to say, that lime used as a manure for the potato, renders it more mealy and savoury. It may, if the crop be grown in the humid genial climate of Germany, and in a retentive soil; but, in a favourable soil in this country, the best saline application is a mixture

of 2 lbs. common salt and 1 lb. Epsom salt to each square rod of ground. The best potatoes in England (those of Lancashire and Cheshire) are grown in light soils within the influence of the sea-haze, (which brings to them those salts), and are treated with the richest of animo-vegetable manures.

The flavour of vegetables is greatly influenced by their exposure to the light, without which they cannot duly elaborate their appropriate juices; to demonstrate which, if demonstration be necessary, let a crop of peas be sown on the south and north sides of the same wall.

Freedom from excess of moisture to the roots is another essential circumstance for obtaining full flavoured vegetables. This is only to be secured by a good system of under-draining. This is most remarkably apparent in pot-herbs. If these be grown in a wet soil they are luxuriant, but very deficient in the peculiar essential oils on which their flavours depend.

Seedsmen are not always too careful in preserving the *purity of varieties* of which they sell the seed; but it is quite certain, on the other hand, that difference of soil and of cultivation will work changes on the crop grown, that bring censure upon the seedsman totally unmerited.

Thus, we have seen Knight's Wrinkled Pea sown from the same bag upon a light and upon a heavy soil, and the produce through every stage of growth strikingly dissimilar. So, at a late meeting of the London Horticultural Society, some Ringleader cucumbers were exhibited. Some of them had been watered with a solution of nitrate of soda, the remainder had been grown in loam mixed with powdered charcoal; they were very dissimilar, the one being prickly, and the other nearly smooth.—*Gardener's Almanack*.

TRANSPLANTING LARGE EVERGREENS.—Mr. Glendinning, of the Chiswick Nursery, Turnham Green, recommends all evergreens, and whatever their age, young or old, to be transplanted in August or September, which last, he says, is "the *safest* month in the year." He prefers this month, because the sap is then descending, and the sun's action on the decline; besides, he considers that the earth being yet warm aids the production of young roots during the same autumn. Preparatory to moving large evergreens, he recommends a trench to be dug round them, so as to include a ball of earth not too large to move undisturbed, and the trench so deep as to enable the workman to cut through all the principal roots. This is to be done in the winter previous to moving, and the trench again filled with earth. This greatly facilitates the moving of the trees or shrubs. At the time of transplanting, after they have been replanted, the roots are to be thoroughly watered with *pond* water. Each should be supported in its new place with three stakes, for if violently shaken by the wind they cannot produce fresh roots.—*Journal of Horticultural Soc.* iv. 41. That evergreens planted in September will succeed if the season prove moist we have no doubt, and Mr. Glendinning we are quite sure has so succeeded; but then we are equally sure that Mr. Rogers, Nurseryman, of Southampton, succeeded equally well in planting evergreens in April. They are both practical men, and we think that the error they have fallen into is mistaking an exception for the rule. If April and May are moist and are succeeded by a wet summer, April-planted evergreens will succeed admirably; and if October is wet, those planted in a moist August or September will thrive

equally well;—but what would they do if a dry May was succeeded by a hot summer, or if September and October were, as usual, hot and dry?—Ed. C. G.

SOOT MANURE FOR CELERY.—Mr. W. Cole, gardener to H. Colyer, Esq., of Dartford, says that soot water is an excellent manure for celery; and that, where worms and other insects are troublesome, a little dry soot dashed in along the rows will prevent their ravages.—*Journ. of Hort. Society*, iv. 56.

EARLIEST CONSERVATORY OR HOT-HOUSE.—Albertus Magnus possessed a structure of this kind in the Convent of the Dominicans at Cologne. This celebrated man, who had already fallen under the suspicion of sorcery on account of his speaking machine, entertained the king of the Romans, Wilhelm of Holland, on the 6th of January, 1240, in a large space in the Convent's garden, where he kept up an agreeable warmth, and preserved fruit-trees and plants in flower throughout the winter. The account of this banquet was exaggerated into a tale of wonder in the "*Chronica Joannis de Beka*."—*Humboldt's Cosmos*, 2. Note xxii. and authorities there cited.

VEGETABLE MARROW.—Mr. Cuthill, Florist, of Camberwell, says, "I have been trying numerous experiments this autumn with ripe vegetable marrows; and I find they contain a rich, sugary, and farinaceous matter, and are a most excellent and nutritious article of diet, when dressed in the following manner:—Cut the marrows into short pieces; take out all the pitch and seeds, and boil them in plenty of water with salt. When well boiled scrape out all the marrow, put it between two dishes and squeeze out all the water, then mash it well, adding salt, pepper, and a little butter; it is then a dish fit for any table. But my object is, strongly to draw attention to the desirableness of growing marrows instead of the later kinds of potatoes, until more propitious seasons shall come. The early potatoes having been well taken care of during winter—as recommended in my pamphlet on the cultivation of the potato—the marrows may be sown about the first week in May, in the open ground in a warm corner; when transplanting time comes, the early potatoes will not be near ripe; but a root of potatoes is to be lifted every six or eight feet apart, in every sixth or eighth alternate row, and the marrow to be inserted in its place. I find that when thus planted, in moderately rich land, I can grow twenty tons of marrow to the acre easily; and, when ripe, they can be stowed away anywhere, and will keep good for a very great length of time. In addition to their utility as a vegetable for the table, they form a most economical and excellent article, when boiled, for fattening pigs; and landlords would do well to encourage their tenants to cultivate this prolific vegetable, which will yield them an ample return for their labour, in place of the later sorts of potatoes, until more propitious seasons for the cultivation of the potato shall return to us."—*Gardener's Chronicle*.

COTTAGE FARMING.—One of the best practical farming lessons that I have ever received, was given me whilst travelling in Wales, last February twelvemonth, by the mail between — and —. I had proceeded direct from London, and was becoming very tired from being so long shut up, when told I should find amusement, and the distance shortened, by taking a seat for a few stages on the box. The afternoon being fine, I was thus induced to place myself by the coachman, of whose farming I had been hearing wonderful accounts. We had not pro

ceeded far when some remarks of mine, commenting on finding the cattle shivering in the fields at that inclement season, opened the conversation. "Ah, sir!" said the coachman, "you may well make these remarks—these Welshmen see no farther than their pigs there, that carry their ears over their eyes; and when I holla to them to get out of the way, are sure to bolt between the leaders' legs. Such a thing as a dry farm-yard, well littered down, with the stock half hid in the straw, you will not see in all Wales. They have no idea here of making their animals comfortable, or of providing manure for turnips by wintering them in their yards. No! their poor cows and beast are all exposed at this season; starving in their fields, dropping their manure under hedges and trees, where it does no good, and half the summer is lost in recovering the flesh they lose in the winter; and consequently a field of turnips is a rare sight in this country. Vegetables for man or beast at this time are scarcely to be had; but then it's an ill wind that blows no one any good. Their neglect does me no harm. I drive the mail four stages out and in every day, and this gives me four hours a day to work in my garden. My home is in —, where I have a good cottage and nearly an acre of garden for £12 a-year; gardens in this country are not thought much of, except to grow potatoes. They here don't know what may be made from a small piece of well-done land—so I get mine cheap. There, I could as soon live without bread as without green stuff; I wish I could show you the fine brocoli and Brussels sprouts I am now selling to those who have gardens of their own, and are getting nothing out of them. I have made £18 in the last twelve months of its produce, besides what we have ourselves consumed. All this is done with the manure these people take no account of; they will go crawling all day on the roads to pick up the dung they find there, and yet let all their soil at home run waste into holes or ditches, or be carried away by their rivers. When a lad, I was always more ready to help hang a gate, or mend a fence, and fonder of working at the wheelbarrow than going to school, so I am handy with tools. I have knocked up a carriage on wheels, and I sink tubs in my cesspools, into which everything from my house, cow-stalls, and pig-sties is drained, and when the tub is full it is raised on my carriage; and with little labour, and no dirt, I and my boy are able to draw it about, and apply it where it is wanted. By this means my garden has become so rich, it now does not take all these cesspools provide; the remainder is now carried out to a little meadow I hired for a cow, but finding she could not keep down the grass (which by this dressing has rapidly increased,) I took to buying weaning calves, and as these grew to near calving, I found small farmers to take and rent them of me at a pound a year apiece. I have now twenty cows so let, and I have also forty sheep which I have thus raised and put out; besides, I must not omit a sow and her pigs, which are kept principally on the waste from my garden, and the milk we have to spare. The sow gives two litters a year, and generally nine or ten pigs at a time; these come in March and September, and find me in bacon and pork, and pay most of the rent. They tell me in a few years we shall have railways everywhere, and there will be no coaches to drive; I shall then be fit for nothing, unless I again turn farmer. I was born a farmer, as was my father and his father before me, and at twenty I came to one of the best little farms at the rent in Buckinghamshire; but at that age nothing would do for me but driving a coach, and in five years I had given

up my farm, and was on the 'Tally-ho!' and so I have continued driving ever since; but 'what is bred in the bone will come out in the flesh,' so now I want to be again a farmer, and you see I am getting together the stock to begin with. Won't I some day show the natives how to raise larger crops and grow roots, by well dressing and keeping the land clean! The gentry round come to see the coachman's farm, as they call my garden and field. Sir John —'s agent came a few weeks ago, and offered to let me one of Sir John's farms, but I told him I was not yet ready to take one. What do you think he said in reply? 'Why, that the want of a couple of hundred should not be a hindrance, for he wished to have me on the estate to set an example to the old tenants, who were always complaining of the times, and who he feared, with free trade and low prices, would soon not be able to pay any rent at all; but I told him, 'No, no, I would wait a little longer.' You see I can manage to keep laying by a few pounds as I am now doing, and I am sure nothing is to be done in farming without plenty of capital. Do you think, sir, I could drive this mail ten miles an hour over these hills, if the horses had not plenty of corn? Nothing does well that is done by halves; when I go farming I will have a hundred to spare, and no double rent to pay, from the want of capital." HEWITT DAVIS.

PENSTEMON SPECIOSUM.—Mr. G. Gordon, one of the managers of the Horticultural Society's gardens, at Chiswick, gives the following directions for the cultivation of this beautiful flower. "The seeds should be sown as soon as ripe in the autumn; for, if not sown until spring, they will probably not grow until the following March, which is the case with those of most *Penstemons* from the north-west coast of America and California. The seeds should be sown in pans or large pots in sandy loam, without any mixture whatever, and should be placed in a cold pit or frame for the winter, where they will require no further care until the following spring, (beginning of March,) when they should be removed to a warmer situation, where there is plenty of light and air, (the greenhouse is a very suitable situation,) and where they may remain until the middle of May, when the young plants should be potted, taking care at all times that they never suffer from the want of water, with which they should be liberally supplied. In potting, place each plant singly in a 60-pot (3-inch,) and use a compost composed of three parts sandy loam, and one of well decayed cow-dung: afterwards place the plants in a close pit or frame, and water freely for a few days, until they recover the effects occasioned by the shift; afterwards give air freely, and when the weather becomes very warm, and the sun bright, about midsummer, place the plants in a frame with its face to the north, shading them in very bright sunshine, but fully exposing them during night, and in dull weather. They may remain in this situation until the end of August, when they should be shifted into larger pots, using the same kind of compost as before, and giving a liberal supply of water. When shifted they should be placed in an airy situation, where they are partially shaded from the sun, until the end of October, when the strongest plants should be planted out in a bed in the flower-garden, made rather rich and fresh, with sandy loam and rotten dung; the smaller ones should be again transferred to a cold pit or frame for the winter, where they will be free from damp or stagnant moisture at their roots, and where they may remain till the end of the following March, when

they may also be planted out in the flower garden as before, making the soil very rich for them with rotten dung. These plants will then make a good succession to those planted in the autumn: they must be freely supplied with water in very dry weather, but never over-head; for if watered over-head, they very soon canker and lose their stems; and as the stems are easily blown over or broken off by the wind, they should be fastened to slender stakes about the beginning of June, and it would be very advisable to place hand-glasses over the plants planted out in the end of October, to protect them in case the winter should prove very severe and damp; for although they are seldom killed by cold, they are very impatient, and soon injured by frost and damp together, particularly in spring. Thus treated, this fine *Penstemon* will bloom from the end of June to September, and produce abundance of seeds, which should again be sown as above stated; for in reality the plant is not more than a *biennial*, and requires to be raised every year from seed, to keep up a succession."—*Gardener's Chronicle*.

CARDOON.—Although, except in raising the plants in pots, there is nothing particularly new in the following mode of cultivating the cardoon, by Mr. Fleming, of Trentham Hall, yet it is an excellent mode; and we insert it for the purpose of rousing attention to a kitchen vegetable too little known, and too much neglected.

It is good stewed like celery, and is an agreeable addition to stews, haricots, and soups, and where it is disliked, it is because sufficient attention has not been paid to boiling and soaking it with water, so as to remove the bitter flavour it otherwise retains. Only the heart, and not the piped outer leaves, ought to be employed. The hearts should be boiled until tender, in water without any salt; all strings and sliminess should then be removed from them, and then they should be kept in cold water until required for table. They may then be served up with white sauce or gravy.

"I choose for the cardoon," says Mr. Fleming, "a piece of ground that requires well pulverising and a rest from heavy cropping; as for growing them on the plan I follow, it matters not how poor or stiff the soil, so that the bottom be dry. The exposure must be an open one, as they require a free circulation of air and all the sun possible. Having marked off the spaces for the trenches and ridges, allowing 6 feet for each, those spaces marked out for the ridges are manured well and dug, for I keep in view the improving of the pieces of ground for other crops, as well as providing for the cardoon. The trenches are next dug out one foot deep, laying the soil right and left on the ridges, and breaking the lumps well as the work proceeds. The sides of the ridges should be well sloped off, and beaten smooth with the back of the spade. The trenches being now ready, we wheel into them, to the depth of 4 to 6 inches, a previously prepared compost, consisting of chopped turfy soil, good solid half-rotten manure, and road drift or fine ashes, and, if we have it, some burnt clay, in about the proportion of equal parts of each kind. This is forked into the trench in such a manner as to keep the compost merely covered, while the ground below is loosened to the depth of a foot at least, and this finishes the trench, which ought to lie uncropped until the season for planting out the cardoons, by which time the ground will be in fine order to receive them.

We sow two rows of dwarf peas upon the ridges,

and a row of spinach between; these will be off before the cardoons require earthing up. In the first week in May, we sow the seeds in thumb pots, placing two sound seeds at opposite sides of the pot, and plunge the pots in a cold frame, which is kept close until the plants appear, when plenty of air is admitted to prevent them drawing up weakly. In a fortnight after the plants are up, they will be strong enough to plant out in this order:—one row up the centre of each trench, 18 inches apart, and a row 2 feet from it in quincunx fashion on each side.

Planting two plants together is to guard against losses by insects, and, when all danger from this is over, the weakest can be destroyed. Raising them in pots, instead of sowing them in the ground, is to prevent gaps in the rows, and to give the opportunity of having all the plants in the ridge of equal size; so that, when earthed up, the plants being alike in strength, the same quantity of soil will be required for all. The weakest plants may be kept in the cold frame 10 days longer, which, with a second sowing, will give a succession. Water the newly turned out plants, and loosen up the soil between them, which finishes the planting part of the business. If dry weather succeeds this operation, the plants will require watering once or twice, until they get established, after which they will only require to be kept clear of weeds till October. This will be most advantageously done by forking among them occasionally, which will keep the weeds in check, and promote the growth of the plants better than the use of the hoe. In the beginning of October, the most forward trench of plants will have attained their full growth, and a sufficient number of well twisted hay-bands must be provided for winding round them. Take advantage of a fine dry day, and commence by carefully bringing all the leaves into an upright position, in which they should be held by one person while another fastens the hay-band round the bottom of the plant, and winds away tightly until the whole of the stalk is bound round, and the end of the rope secured. Proceed in this way until the trench is completed, and then earth up till the bands are covered with the soil, which should be pressed very tightly round the plant at the top, to exclude air and moisture as effectually as possible. Proceed in the same manner with the remaining trenches when fit, until the whole are finished.

By deferring the earthing up till October, and by twisting the bands well, and fastening them tightly round the plants, we have very few failures, although our situation and soil are very indifferent. We have tried blanching by fastening the leaves closely together with string or matting, and putting an earthen drain pipe over the plants, and filling up with sand. This plan answers admirably; the whole of the leaf stalks were perfectly blanched, quite crisp, and fit for use. The adoption of this plan would prevent the loss of room occupied by the ridges, as no soil would be wanted for earthing; but it takes a pipe 7 or 8 inches in diameter for a well-grown plant, and these, if many are required, are expensive. The cook here, who is one of the first in his profession, gives me the following recipe for cooking and serving:

"After the cardoons have been trimmed and washed, and their outside leaves removed, cut them into pieces about 4 inches long. Put the pieces into a pan of cold water; when boiled take them out, and with a cloth rub the outer skin until it can be easily removed. After this is done, let them be well washed, and boiled three hours in good stock or broth. Serve them very hot with brown sauce, made with good

gravy. It is an improvement, in serving the cardoon, to put some narrow round it."—*Gardener's Chronicle*.

SHELL SAND, A CURE FOR THE POTATO DISEASE IN THE PARISH OF HOLME, IN ORKNEY.—Mrs. Smith had been in the practice of having shell sand put into the parts of the garden where the early potatoes were planted, for several years before the disease made its appearance, in order to improve their quality and make them earlier. It had the effect, and from that time she reaped the earliest and best potatoes in the country. In 1846, the first year of the disease in Orkney, she was prevented from attending to planting, and but a small patch that never before produced good potatoes was sanded, and it yielded the only part of the crop that escaped the disease. Next year, 1847, all the early potatoes were manured with shell sand, and proved quite sound, while the general crop was diseased. To test the efficacy of this sand in preventing disease, she, in 1848, had part of the early potatoes planted with the sand, and part without. The first was perfectly free from disease, and the latter overrun with it, as well as the rest of the crop. The potato submitted to the experiment was a white kidney. The sand was strewed rather thickly on the ground before the potatoes were planted, but it was found to have the same effect when spread over the surface afterwards. Shell sand, of which a sample is forwarded, is what was used. Mrs. Smith was induced to try it, from having seen similar sand improve pasture grass land many years since.—*Gardener's Chronicle*.

TO CORRESPONDENTS.

PRUNING PEACHES JUST PLANTED (*M. W. C.*).—Select five shoots, cut the others away; set out two of them to the right, two to the left, and one upright in the centre. In pruning, leave the lowest right and left eighteen inches long; the next, one foot; and the centre one, nine inches. Watch THE COTTAGE GARDENER in May, how to proceed with disbudding and stopping, on which so much depends.

RASPBERRIES (*Brookland Gardens*).—The True Fastolf and Autumn-bearing are both red. The first differs from the common raspberry only in bearing much larger fruit; and the second differs from both in bearing from July to the end of October, and even later, if pruned as directed at p. 8 of our First Number. They are all propagated the same way, viz., either by suckers or division of the stools.

MEADOW, LAYING DOWN A (*M. W. C., Suffolk*).—That part of your field already sown with wheat, can have grass seeds sown and harrowed in some time during March, at which time the rest of the field had better be sown with barley and grass seeds also. If you will tell us the nature of your soil, and whether on a hill, or near a river, we will tell you what seeds you had better sow.

TUBEROSE (*F. Giles*).—No man, however lowly, will ever find us inattentive to his inquiries, or unwilling to inform him. Your thanks are the more gratifying, because they tell us we are useful. You will find the culture of the tuberose in another page of this Number. Your new-bought bulb, if true to name, is not much—a hardy plant that will grow in any common soil, the leaves and flower-head not unlike an onion, with dingy yellow flowers. Thanks for the spirit of your letter.

THE CALENDAR (*Ivanhoe*).—It always is for the following week. This Number, for instance, was so published in London, that you could have it in Sheffield on the 25th. The fault must be with your bookseller.

CHIMONANTHUS FRAGRANS (*J. Wharfe*).—This hardy deciduous shrub is a native of Japan. If it is the sub-species *C. grandiflorus*, it will do best on a well-drained border, beneath a south wall. The three kinds may be propagated by layers, or by cuttings of the young shoots planted in a pot of sand under a glass, and plunged in a gentle hot-bed. The rooted plants do best if a little peat is mixed with the soil, and leaf-mould is the next best addition. The only pruning they require is to pinch off the points of the strongest young shoots early in the summer; this causes them to push out side-shoots, bearing numerous flowers.

FRUIT-TREES FOR A NORTH-NORTH-EAST WALL (*39, O. B.*).—Your situation will take ten dwarf trees; the following would answer

very well:—1 Duke cherry, 3 Morello ditto, 1 Orleans plum, 1 Reine Claude violette plum, 1 Aston town pear, 1 Marie Louise ditto, 1 Hacon's incomparable ditto, and 1 Easter Beurre ditto.

COTTAGE FARMING (*X. Y. Z.*).—We shall by degrees give the information you require. The *Farmer's Encyclopædia* and the *Farmer's Almanack* should be your standard works for reference.

MAGNOLIA (*Rev. G. Griffiths*).—*Magnolia grandiflora*, varieties elliptica, obovata, lanceolata, and rotundifolia, are all splendid trees, and hardy if grown on a peaty well-drained soil. If plants of a few years old are planted, they will bloom the second year after removal.

SOOT FROM PEAT (*Ibid*).—We never tried this, but judging from the components of peat it must be nearly as good for manure as that from coal. In so cheap a publication as ours, and as we have no room to spare, we should not do justice to our old subscribers by reprinting any extracts from our early numbers. Twopence will buy the number containing the extract.

CUCUMBERS (*David Gee*).—You will find a list at p. 144. Latter's Victory of England has been grown 21 inches long; Brownston Hybrid, 15½; Duncan's Victoria, 28; Allen's Victory of Suffolk, 24; Sion House, 9; Victory of Bath, 17; and Prizefighter, 16 inches.

CHRYSANTHEMUMS (*Rev. W. Procter*).—None of those in the list are killed.

CELERY CULTURE (*S.*).—The plan pursued by Mr. Turner is adapted for growing celery of the largest size, and this does not prevent it possessing every other excellence. In a short time we will state our mode of culture for general table use. Mr. Nutt will not have any seed to sell until next autumn. Seymour's Red and White Solid are good sorts for general purposes.

APPLE WEEVIL (*Ibid*).—However extensive your orchard may be, it would cost but very little to have the loose bark scraped from the trees. Doing so will not injure but improve their health. We recommend you to do so forthwith, and then, with a whitewasher's brush, to paint your trees over with a strong mixture of gas-lime and water. There is no better mode of destroying the apple weevil; and by repeating it for a season or two, you will probably get rid of the pest.

PEA (*Twig*).—The dwarf white pea you describe as being no more than six inches high, and called the *White Fan*, was, perhaps, the *Queen of the Dwarfs*. We know of none other approaching your description.

TABLES OF PRICES (*J. Price*).—We have not lost sight of these, but the difficulty is to obtain returns that can be relied upon. They are too often totally devoid of credit, made up to suit private purposes.

WORMS (*J. N. B.*).—No applications yet tried will banish these from your lawn, but you will find a mode of driving them away at p. 124 of No. 13.

MISCELLANEOUS.—*W. X.* and *L. R. Lucas* will be answered in our next.

PEACH-LEAVES FALLING (*B., Waterford*).—Your peach-trees on a south wall produce, you say, the usual amount of leaves at the proper season, and after a while they fall off; but this is not information sufficient for us to advise you confidently. The great amount of humidity in the Irish climate is not by any means favourable to the peach. Nevertheless, it is very probable that your case proceeds from the attack of aphides (Plant Lice). It is hard to persuade the world what an extent of mischief these simple insects produce with the peach. We have known effects quite equivalent to the anomalous appearances complained of produced in three days. Are, however, the roots of your trees right? Have you read our article on "Stations?" Watch THE COTTAGE GARDENER; our advice is at least practical, and quite as well adapted for Ireland as England.

STRAWBERRIES AND GOOSEBERRIES (*T. Griffin*).—We apprehend that the strawberry you mention is Myatt's British Queen, which you may obtain of any respectable nurseryman. The following 12 best gooseberries may be obtained from Mr. Turner, Neepsend, Sheffield. *Reds*.—Slaughterman, Companion, London. *Yellows*.—Catherine, Leader, Drill. *Greens*.—Thumper, Queen Victoria, General. *Whites*.—Queen of Trumps, Lady Stanley, and Freedom.

DAMSON PRUNING (*Brookland Gardens*).—You inquire what pruning the damson requires; and whether it would be safe to cut down one just planted, as you wish to dwarf it? In reply,—the only pruning the damson requires is a little thinning out of cross branches during its earlier progress. Many thousands, however, in the north-west of England never feel a knife. Your newly-planted tree should be suffered to grow one season, and then be cut to the desired height. The process will, however, make nearly three years difference in the produce coming to hand. Your plum query is, you will see, partly anticipated. You will find copious advice shortly.

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 1—7, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
1	TH.	Botanical Society's Meeting. <small>[seen.]</small>	Bay Tree	VII	VI	1 20	8	13 56	32
2	F.	PURIFIC. CANDL. D. Pied Wagtail first	Snowdrop	39	49	2 34	9	14 4	33
3	S.	Blase. Tawny Owl hoots.	Great Water Moss	38	51	3 44	10	14 10	34
4	SUN.	SEPTUAGESIMA SUN. Field Speedwell <small>[flowers.]</small>	Common Goldylocks	36	53	4 48	11	14 16	35
5	M.	Agatha. Elder leaves open.	Common Primrose	34	54	5 45	12	14 20	36
6	TU.	Linnean & Hort. Soc. Meetings.	Blue Hyacinth	33	56	6 33	13	14 24	37
7	W.	Golden Plover goes.	Round-leaved Cyclamen	31	58	rises	☺	14 27	38

THE PURIFICATION OF THE VIRGIN MARY, of the anniversary of her presenting her child and offerings in the Temple, (Luke ii. 22,) is celebrated in the Roman Catholic Church. It is also called CANDLEMAS DAY, because on that day, according to the Ritual of the same Church, the candles which would be used during the year were brought to the priest and blessed. In the north of England, it is called "Wives' Feast Day." In Somersetshire they have as a farming proverb, that you should "Sow beans on Candlemas waddle;"* and in many parts of these islands they have rhymes intimating that if it is fine on this day the remainder of the year will be inclement; the Scotch express this in these two lines:—

"If Candlemas is fair and clear,
There'll be two winters in the year."

BLASE was Bishop of Sebaste, in Armenia, and was martyred in the year 316. He is said to have been the inventor of the comb with which wool is combed, and for this reason he was adopted by the Wool-combers as their titular saint. In some of the Yorkshire woollen districts, processions and feasts are held on this day, in which some weaver, representing Bishop Blase, performs a conspicuous part. At Winchester, formerly a great woollen mart, the anniversaries of two of its charities are always accompanied by a representative of Bishop Blase.

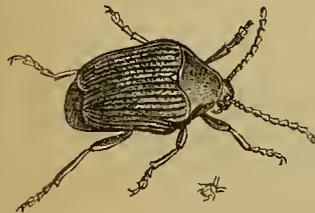
AGATHA was a Sicilian Christian virgin, martyred in the year 251, by command of Quintianus.

PHENOMENA OF THE SEASON.—"February fill ditch," shews that the months have not changed their manners; for our ancestors so called this one of the twelve, because of the floods which then overflowed the country; and, still, February continues "birth-time of thaws and fogs." It is a very common error to consider this a rainy month; but, so far from this being the case, less rain falls during its continuance than during that of any other month. On an average of years, at London, the amount of rain in inches which falls in each month is as follows:—

January.....	1.483	July.....	2.516
February.....	0.746	August.....	1.453
March.....	1.440	September.....	2.193
April.....	1.786	October.....	2.073
May.....	1.853	November.....	2.400
June.....	1.830	December.....	2.426

The western side of England is visited every year with a much greater fall of rain than is poured upon its eastern counties; probably three times the quantity. The depth of rain which falls on an average over all England is about 30 inches, or 300 tons on each English acre.—*Milner's Gallery of Nature*, 473.

INSECTS.—The little furze beetle (*Bruchus ater*) may be now found upon furze, and is one of a family that confines its attacks chiefly to leguminous (pod-bearing) plants. This insect, represented



Feb	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
1	Snow, 31°—23°	Fine, 46°—26°	Fine, 53°—45°	Frost, 39°—20°	Frost, 38°—27°	Fine, 51°—39°	Cloudy, 40°—30°	Fine, 37°—26°
2	Snow, 31°—18°	Fine, 50°—40°	Rain, 45°—37°	Snow, 39°—28°	Frost, 40°—21°	Fine, 48°—35°	Snow, 36°—31°	Fine, 46°—29°
3	Frosty, 28°—14°	Cloudy, 45°—37°	Showery, 45°—24°	Frost, 40°—23°	Showery, 43°—34°	Fine, 52°—39°	Snow, 37°—30°	Fine, 46°—33°
4	Frosty, 30°—22°	Cloudy, 42°—30°	Snow, 39°—30°	Snow, 40°—25°	Cloudy, 43°—25°	Fine, 49°—36°	Fine, 39°—22°	Cloudy, 51°—39°
5	Fine, 30°—26°	Cloudy, 42°—27°	Frost, 39°—29°	Frost, 40°—19°	Fine, 48°—31°	Fine, 49°—30°	Cloudy, 35°—32°	Rain, 53°—48°
6	Cloudy, 28°—24°	Fine, 38°—26°	Cloudy, 38°—31°	Frost, 43°—26°	Fine, 43°—19°	Fine, 50°—33°	Showery, 51°—30°	Showery, 55°—46°
7	Sleet, 27°—24°	Sleet, 40°—30°	Snow, 37°—32°	Showery, 45°—31°	Frosty, 38°—17°	Showery, 52°—31°	Cloudy, 35°—17°	Cloudy, 52°—40°

in the annexed cut of its natural size, as well as magnified, is black, with its elytra (wing cases) marked with lines, and lighter-coloured dots; antennae (horns) divided into eleven joints. The females are now depositing their eggs in the germs, or young seed-vessels, of the winter-blooming furze; and the same insects may be found again in June similarly employed upon the summer-blooming furze. The grub hatched from her eggs lives upon the seeds, and every one who has noticed this plant, must be aware that its ripe seed-vessels often contain nothing but a little rough powder; a powder which is the refuse of the seeds destroyed by the grub of this insect. Two other members of this family of beetles, *Bruchus granarius* and *B. pisi*, are greatly destructive to our pea crops. They are small brownish beetles, usually found at the time the plants are in flower, and they deposit their eggs in the tender seeds of leguminous plants, and sometimes in different kinds of corn. In these the larva, a small white fleshy grub, finds both a suitable habitation and an abundance of food. It undergoes all its transformations in the seed, and the perfect insect remains in it till the spring, though in fine autumns the perfect insects appear at that season also. The larvae possess the singular instinct of never attacking the vital part of the seed till the last. We have often observed the seed-pods of chorozoma, and other delicate and scarce leguminous plants in greenhouses, pierced by the *Bruchus pisi*. The more effectual remedy is to pull up and burn the haulm and pods altogether, and not attempt to get a crop at all. Peas infested with *B. granarius*, are always known by a small hole being on one side, and these should be carefully picked out, as they not only spoil the appearance of a sample, but spread the injury.

* Waddle—wane of the moon.

WE are too much accustomed to ignorance and prejudice being connected with all that relates to the cultivation of the soil, to be surprised that the use of LIME, as a fertilizer, has been so much neglected by the gardener. It is quite true that the preparation of lime was a process known to the Israelites, some two thousand and five hundred years ago, (Isaiah xxxiii. 12); and it is equally true, that Cato and

Pliny, Roman writers contemporary with the Apostles, speak of the same process, and of the use made of the lime as a manure; but these facts do not at all induce us to be surprised that, perhaps, not one gardener in a thousand ever employs lime for the same purpose. Gardeners of the old school, more even than other men, are "bundles of habits," and as the use of lime, as a manure, is not one of these habits—

that is, because neither his father nor grandfather ever used it, so neither does Jonathan Blue-apron. However, the bundles of habits have of late years been very much broken up, changed, improved, and enlarged. Indeed, so much so, that if Stephen Switzer, Philip Miller, and John Abererombie, the three best gardeners of the last century, could revisit the enclosures over which they once presided, they would feel "strangers at home;" for there is a change in everything, we think, except the watering-pots; for these are quite as awkward and unsightly as they were in 1749!

To the other changes which those three ancient gardeners would have to contemplate, we desire to add the general employment of lime, as one of the gardener's best friends; and our desire is founded sure and steadfast upon "practice with science." Let us take the testimony of science first, and this shews to us that not one of the crops cultivated by the gardener—not one, be it pot-herb, flower, or fruit—but contains a very considerable amount of lime. For instance, 100 parts of the ashes of brocoli leaves contain more than 26 parts of lime; 100 parts of the ashes of the greengage, 10 parts; of the Jerusalem artichoke, 41 parts; of the daisy, 25 parts; and of the sunflower, 11 parts. This list might be increased by the addition of every garden plant that has been submitted to the tests of the chemist, but a number has been enumerated sufficient to enforce the fact upon the attention of our readers. It is quite true that a portion of the lime found in plants is in the state of phosphate of lime (earth of bones); and this is best given to them in the form of dissolved bones, as directed at pp. 62 and 124. But much of the lime in plants is also in the state of carbonate of lime (chalk); and in no state so favourable for the rains to dissolve it, and thus enabling the roots to suck it in, can it be added to the soil, as in the shape of lime.

Lime added to a soil usually improves its staple; clayey loam mixed with it is rendered more friable, that is, more easily broken down by the spade and the rake; light sandy soils, on the other hand, are rendered more compact and more moist—for Professor Schubler and other chemists have found that lime attracts moisture very powerfully from the air.

Lime, also, is very caustic; and, when mixed with a soil, not only destroys the insects it contains, but speedily converts to vegetable mould the stubborn dead stalks and other fragments of previous crops with which it may come in contact.

We have had the opportunity of trying numerous experiments with lime, both upon light and heavy soils; and have used it both by itself and mixed with other matters, so as to form a compost. Twenty-five bushels per acre for light soils, and one hundred bushels per acre for heavy soils, we think, are the most beneficial quantities. One bushel of lime to

every three bushels of the turfy parings and scourings of ditches, makes a compost, which, after being mixed for six weeks, and then dug into a light soil, produced excellent crops of *turnips* and *potatoes*.

Lime 30 bushels, and salt 15 bushels, applied to an acre of light soil, just before sowing it with turnips, yielded a crop equal to another on which rye had been fed off by sheep, who, at the same time, were supplied with oil cake. Lime should never be mixed with dung of any kind, as it promotes the escape from them of their most valuable constituent, ammonia. Neither should it ever be mixed by the gardener with the peat some of his plants require; for it decomposes the sulphate of iron (green vitriol), and other substances which render peat acceptable to our rhododendrons and other American plants.

It is a common practice to burn couch-grass, docks, gorse, and other vegetables, which are very retentive of life, or slow in decay;—a more uneconomical, unscientific method of reducing to a state beneficial to the land of which they were the refuse, cannot be devised. In breaking up heaths, such vegetable refuse is very abundant; but, in all cases, if the weeds, leaves, &c., were conveyed to a hole or pit, and, with every single horse-load, and with barrow-loads in proportion, a bushel of salt and half a bushel of lime were incorporated, it would, in a few months, form a mass of decayed compost of the most fertilizing quality; the lime retaining many of the gases evolved during the putrefaction of the vegetable matter, and the salt combining with the lime to destroy noxious animals, which might form their nests in the mass. By this plan nearly all the carbonaceous matters (or charcoal) of the refuse vegetables are retained; by burning, nearly all of them are driven off.—*Principles of Gardening*.

Lime rubbish is the old mortar and plaster obtained when brick buildings are pulled down. It is an excellent manure, abounding with the salts of potash and lime. It should be reduced to powder before spreading and digging in.

Lime water, one of the most effectual applications for destroying slugs, worms and other insects, is best made by mixing one peck of fresh-burnt lime to forty gallons of clean soft water. A watering-pot, containing four gallons, will be enough for soaking a bed thirty feet long and four feet wide; or for a single row of cabbages, or other plants, sixty feet long. We purposed to have added examples of the results from applying lime to particular crops, but our limited space compels us to defer this to some future opportunity.

DEATH was busy, during the past month, among the friends and practitioners of gardening. Earl Auckland, one of the vice-presidents of the Horticultural Society, died unwarned, but, we believe, not unprepared, whilst on a visit to Lord Ashburton, and not

long after a stroll through this nobleman's elegant conservatory. Whilst in India, the writer of this brief tribute witnessed Lord Auckland's exertions there to improve the cultivation of its soil; and willingly bears testimony to their strenuousness and efficacy. His distribution of medals among the native mallees (gardeners); his appointment of Dr. Falconer, to be general superintendent of the Botanic Gardens of Mussooree and Saharunpoor; his encouragement of the Agri-horticultural Society of India; and the long dissertation, written by his own hand, on cotton cultivation, are a very few incidents rising promptly to memory, as instances of the efforts his lordship made to promote the culture of plants in the most important of our tropical possessions; efforts not relaxed, though directed into a different channel, upon his return to England. The words of the Advocate-General, Sir Laurence Peel, when Lord Auckland was leaving our Indian shores, may be repeated over his grave, for they were also applicable to his life at home—"His career, throughout, and uniformly, appeared as if it were to be an answer to one perpetually-remembered query—'How can I best promote the interests of those over whom I preside?'"

Equally sudden in their departure have been those two excellent horticulturists, *Mr. Robert Watson*, gardener to David Anderson, Esq., at Morcdun Gardens; and of *Mr. John Blair*, gardener to the Earl of Roslyn, at Dysart House. The first died on the 3rd, and the second on the 11th of January. Mr. Blair was a very successful hybridizer and cultivator of Rhododendrons, and was preparing for publication an essay on the subject, when death so unexpectedly struck him down.

THE FRUIT-GARDEN.

PRUNING YOUNG TREES FROM THE NURSERY.—This, although appearing at first sight a simple affair, proves to be very puzzling to many beginners in gardening; and, on consideration, we need scarcely wonder at it, for the old moral maxim, "train it up in the way it should go," is, literally, as applicable to a tree as to a child. We have been amused, many a time, at hearing persons declare that they have purchased "a fine peach-tree from the nursery, with shoots four feet long!" and, perhaps, desiring, at the same time, to know how to prune it. But their disappointment when, in former days, the ruthless hand of the pruner would reduce at "one fell swoop" a fine-looking four-foot shoot, to six or eight inches, was indeed great! Your gardener "of the olden time," moreover, was not the man to give *reasons* for such a procedure; and this must in many cases have much increased the disappointment. We will now offer a few words of advice on this head, and will preface them with a few remarks on

THE YOUNG PEACH IN THE NURSERY, AND MODE OF SELECTION.—It should be at once understood, that over-luxuriance in either the peach or nectarine is only another name for immature wood; or, in the gardening language, wood "badly ripened." It is well, if in our damp and fitful climate, the peach or nectarine can produce shoots annually, of one foot in length, even against a wall. Indeed, of what use is a greater length, if a very considerable portion has to be pruned away? If *strength alone* is to be the criterion, the addition of manures will generally accomplish any amount; but such we know to be ruinous.

A great many of our nursery trees are, in these times, trained on sticks in the open quarters of the nursery; and we need scarcely say, that such are more immature by far than those from walls.

Peaches and nectarines are budded in the open quarters; and the spring after budding, the stock is beheaded; when, in consequence, all the sap goes to nourish the young stranger—the newly-introduced bud. This, availing itself of the monopoly of sap, grows with much luxuriance. The young shoot the bud produces is so well suckled, that in general a multitude of side sprouts are also put forth; and, strange to say, it reserves five or six buds at the base, which remain in the embryo state, that is, they do not shoot.

We come now to the autumn, and the young peach or nectarine in this state is termed "*a maiden*," a name which has been technically applied much beyond a century. Now, from such maidens, the nurseryman selects young plants, to supply the place of those sold from his walls or fences; as also those from the nursery-quarter, trained, as before observed, on sticks. These are headed down,—that is, are pruned to within a few inches of the junction of the stock and the new bud; or, in fact, to the embryo buds or eyes, before alluded to. At the end of May, or beginning of June, the young "*maiden*" will have produced several sprouts,—generally about five or six; and these are carefully trained to the wall or fence.

By the end of summer, the young tree loses its original name; and, instead, of being termed a "*maiden*," is called "a dwarf-trained peach," or nectarine. And, indeed, if the culture has been successful, the quondam "*maiden*" is very much altered in appearance as well as value. In the autumn previous, it might have been purchased for eighteenpence; now it is accounted worth five shillings, at least. The purchasers now select from these, and five out of six will prefer those with the longest and strongest shoots; such, however, is not always the best policy. This brings us to the—

PRINCIPLES OF SELECTION.—Such trees are, of course, wanted for a wall or a fence of some kind; such walls or fences are, in general, not very high; and it is desirable to clothe them to the very bottom. We advise the amateur, therefore, to moderate the idea of *very early* productiveness; and to endeavour, by all possible means, so to establish the tree during the first two years, that the above objects may be carried out in a permanent way. Here, then, arises the necessity of a somewhat close pruning during that period. How often have we seen a good and healthy hedge spoiled for want of a closer pruning when in a young state! As with the hedge, so with the tree: the "*bottom*" must be first well established—or, in other words, the lower part of the wall must have good shoots secured to it.

We do not here wish it to be understood that winter-pruning alone is to accomplish all this; no, a far more effective agent will be found in what is termed summer-stopping. We must not, however, digress so much as to explain the rationale of this interesting process; this we shall recur to with much pleasure at the proper period; suffice it here to say, that this we consider one of the most important proceedings connected with fruit culture.

In selecting peaches and nectarines from the nursery, the following we would lay down as maxims to regulate the choice:—

1st. Purchase no tree which has gum exuding from any portion of it.

2nd. See that the shoots trained right and left are equal, or well balanced.

3rd. Select one, if possible, that has an equal number of shoots right and left, and one shoot central, or capable of being rendered so.

4th. As to strength, choose one of a medium character, in which the shoots are rather short than long.

5th. Prefer one in which the young shoots are of a brownish cast, in preference to those of a very pale green.

6th. Select those in which the stock and scion, or budded portion, are nearly equal in thickness; if there must be a difference, the scion should have slightly overgrown the stock.

7th. Take those in which the bark of the stock looks bright and clear.

8th. Prefer those which show portions of fine hearty roots a little above the ground.

9th. Reject all the shoots of which have decaying points, be they ever so strong.

The relative importance of these points of selection are indicated by the order in which they are placed. These rules will be sufficient to guide the most inexperienced. In the next number of *THE COTTAGE GARDENER*, we will give a drawing illustrative of the first prunings, and a select list of peaches and nectarines, with their characteristics, periods of ripening, &c. &c. In the meantime, we may as well offer some advice about the care requisite in planting young fruit-trees.

THE DWARFING SYSTEM—We hope none of our readers will be alarmed at this title. Those who have been pestered with stunted trees will apprehend a case of actual starvation; such, however, is not strictly identical with our dwarfing system, as we shall presently shew. It is one thing to starve a tree with improper soils, and another to feed it with a sound material in a limited quantity.

We have before stated that abundance of fibrous surface-roots must be obtained by some means, or the whole case may fail. It has been long known that such roots lead to a fruit-bearing habit, and *vice versa*. The philosophy of this affair has not been, however, so clearly understood and defined; and this, in due time, we shall endeavour to explain. Admitting, then, that the soil is duly prepared, and everything in readiness, even the young tree in hand, awaiting the knife; the first thing is to see if there be any root of a strong sap, or forkly character. Now, it so happens, that some young trees unluckily possess chiefly such; in such a case, therefore, bad roots are better than none. There is generally, however, about a couple of strong roots, rather of a sidelong or horizontal character than descending, and from these proceed numerous fibres or subordinate roots; these must be carefully preserved. If there should be a strong root of a descending character, let it be cut entirely away. The only business now, is to use a sharp knife, and to cut away every wounded point from every root that can be found broken. The peach-tree is so susceptible of injuries, through bruises, that we consider this course absolutely necessary, in order to ensure the permanence of the tree.

Let it be well understood that, during these proceedings, that is to say, from the moment the tree is taken out of the ground until fixed in its new situation, not a root must be suffered to become dry; every good cultivator will be sure to provide against that. It is, therefore, necessary to keep a water-pot at hand, with a rose on, and frequently to apply a little.

R. ERRINGTON.

THE FLOWER-GARDEN.

WALKS.—No garden can be said to be even respectably managed, where the walks are ill drained, badly defined, neglected, and covered with moss and weeds. If every other part of the garden be kept in perfect order, and yet the walks be even partially neglected, they give an air of desolation to the whole. On the other hand, if the walks are dry, clean, and neat, a stroll in the garden may be endurable, though the grass may be rank, and the weeds rampant in the other parts. We feel, even when in health, great comfort in walking in a garden on a solid, dry walk; but to the invalid, this is absolutely necessary. To such, who have been confined long to a sick-room, and are consequently weak both in body and mind, a short walk in the garden appears an enjoyment devoutly to be wished for. Imagine a dearly-loved one in such a state, some fine spring morning, immediately after a refreshing shower has fallen; the clouds have dispersed, the rain is over, the birds are singing, the sun is shining, and all nature appears rejoicing, and, as it were, running over with thankfulness and joy. On such a day, we wish our sick relative, or friend, to lean upon our shoulder, and gently walk abroad to taste the sweet breath of heaven, and by such influences hope to win back health and strength. Our relative is brought to the door, equipt for this first effort, when, alas! the walk appears in pools of water here—in miry puddles there—and with moss and weeds overgrown; and the invalid, in bitter disappointment, exclaims—"I cannot, dare not, go out! beautiful morning as it is, I must wait till the sun dries up the walk." Perhaps, by that time, the day is declining, and then the fear of the dews of the evening are a final prevention of the desired airing.

To prevent the possibility of such occurrences, our advice is, "mend your ways promptly and at once." We are sensible that our language may appear somewhat strong and savouring of the visionary; but we too often see instances in our daily rounds, of walks in such a state, that a person of infirm health would dread to take the air on them, excepting in the driest weather. As this is a good season to either improve old walks, or to make new ones, we shall endeavour to give our amateur and cottage readers some instructions on the subject.

TO IMPROVE OLD WALKS.—Whenever walks are out of order, proceed with pickaxe and shovel to loosen all the rubbish the walk may be made of. If the walk is not drained, or badly drained, have either some draining tiles or bricks with covers ready. Let all the old rubbish be sifted, and the rough laid in a ridge at one side of the walk. The fine stuff that passes through the sieve will do well to mix with dung to manure the garden with, especially where the general soil of the garden is heavy, or of a clayey nature. Where there is plenty of room to lay the rough rubbish, the whole may be sifted at once; but where that is not the case, the work may be done in lengths of ten or more yards at a time. After the rubble is removed, the next operation is to make and lay the drain, provided the walk is deep enough. To make a thoroughly good dry walk, there ought to be at least nine inches deep of open rubble. The drain should be in the centre of the walk; half of its depth ought to be below the bottom of the rubble. Then lay short drains from the sides of the walk to the centre drain; and upon them, close to the edging, lay four bricks to receive a grating, to take in the top water in heavy showers.

Where the walk is pretty level, these gratings need not be nearer to each other than from 10 to 15 yards; but if the walk is steep, or even of a moderate slope, the gratings ought to be much more numerous; perhaps, in extreme cases, as near as five yards to each other. The clay, or earth, under the rubble, should be made smooth and sloping from each side, down to the drain. This will convey all the water that settles through the rubble to the drain, which drain will convey it to a general drain outside the garden. As soon as the drain is laid and the bottom made smooth, the rubble should be put in carefully, so as not to disturb the drain. This should be put in to within two inches of the level of the edging. If the edging, whether it is of grass, box, thrift, daisies, or even slates, be out of order, in this state of the walk it is a very good opportunity to renew it; but great care must be taken not to mix the earth with the rubble. When all this work is well and duly done, let the rubble be beaten down with a rammer, or well rolled; it is then ready for the gravel. Lay on a coating of rough gravel first, rounding it up in the centre, so that the top of the centre should be as high as the edging, and the sides $\frac{1}{2}$ inch below it. This rough gravel would be better to lay as it is for a few days, or even weeks, if convenient, so that it may settle, and become in a degree solid. Then lay on the last coat of gravel, which should be moderately fine, the pebbles amongst it not being larger than hazel nuts. This coat of gravel should be laid on pretty nearly level with the edging, and rounded up to the centre. This will, after it has been well rolled and becomes solid, allow the water to run to the lowest part of the walk—the sides, and from thence into the drains, through the gratings before mentioned. All the drains ought to have a gentle descent, to allow the water to run off freely. If the walk is steep, it will be necessary to lay the bottom of the drain with slate or flat tiles, to prevent the water working away the substratum, which will soon choke up the drain if this precaution is not adopted. In places where the walks are on a steep descent, it is a good plan to pick out of the gravel, or to procure them on purpose, as many pebbles about the size of hens' eggs as will pave each side of the walk six or nine inches wide, laying them rather hollow, so as to form a conduit for the water in heavy rains. This will prevent the gravel washing away, and will not look amiss, provided it is neatly performed.

WALKS FOR COTTAGE GARDENS.—If our cottage friends cannot procure gravel, there are many substances that will make a firm dry walk. Perhaps the next best to gravel is coal-ashes. In the neighbourhood of large manufacturing towns these are very plentiful. In using them, proceed as with gravel,—drain first; then put in the rough, larger pieces, and then a coat of fine ashes, beating them down firmly with the back of a shovel or spade. These walks are dry and firm, though, of course, not so sightly as gravel, neither do they last so long. We have also seen very decent walks formed of road scrapings. These require to be well raised to keep them dry. Spent tanners' bark, where plentiful, makes a good path, and has the advantage of keeping down weeds entirely; or if these do grow, of being easily weeded. Whichever of the foregoing materials can be easiest procured, we hope our cottagers will not neglect to obtain and use them at once, for nothing makes a garden, however humble it may be, appear so unsightly, as a mny, puddly walk up to the door.

LABELS FOR AMATEURS.—We saw lately some very neat enamelled labels, both for pots and borders, at a

shop, 109, St. Martin's-lane, London. They are very durable, neat, and, considering the material, tolerably cheap. These for pots were of three sizes—the largest 63s, middle-size 48s, and the smaller 42s per 100. The names of the plants are beautifully written upon them; the expense of the writing being included in the above prices. Neither the name nor label, with moderate care, can ever decay; not, at least, for a great number of years.

FLORISTS' FLOWERS.

TULIPS.—The very unusually mild weather we have had lately will cause these bulbs to send up their leaves; and, as cold weather may yet reasonably be expected, its effect will be very unfavourable to their flower buds. To prevent this, we must adopt means to check their growth. The most effectual way to do this, is to shade the beds during the day, and to expose them during the night, unless frosty. When frosty, cover up the beds very securely, as the tulip, with advancing buds, is very tender, and the effects of frost getting to them will be shewn by yellow deformed leaves, with imperfect flowers, and consequently great disappointments to the anxious cultivator.

AURICULA AND POLYANTHUS.—These flowers will also feel the effects of the warm weather, and the same means must be used to keep them from prematurely pushing forward their flower stems. Keep them as cool as possible, by giving abundance of air, and during sunshine by shading them; keeping the air on at the same time. Choice seedlings in small pots may now be shifted, to encourage them to grow and make strong plants to flower next year.

PANSY.—Those planted out last autumn will now require the surface of the soil in the bed to be stirred, either with a short three-pronged fork, or a small forked stick; close the soil with the hand firmly round each stem, and keep a look out for slugs and wireworms. Below is a descriptive list of some of the best moderately-priced ones:—

Archusa (Brown's), purple; self.*	Lord Morpeth (Major's), large yellow.
Apollo (Turner's), yellow and bright orange.	Minerva (Schofield's), rich mulberry, and white ground.
Beauty of Guildford (Hart's), white and violet purple.	Model of Perfection (Chater's), mulberry; self.
Blue Fringe (Major's), white ground, deep blue eye, and blue edge.	Optimus (Turner's), white and purple.
Bridegroom (Major's), white and purple.	Perfection (Thompson's), golden yellow; self.
Cato (Schofield's), white ground, with light blue belt.	Pizarro (Thompson's), yellow and bronze.
Climax (Bell's), white and purple.	President (Schofield's), yellow and purple.
Companion (Hooper's), gold and chocolate.	Queen of Whites (Hart's), fine white; self.
Duchess of Rutland (Thompson's) white and purplish lilac.	Rainbow (Hall's), dark purple; self.
Doctor Wolf (Backhouse's), gold and bronze purple.	Richard Cobden (Oak's), black; self.
Excellent (Thompson's), golden yellow and dark bronze.	Satirist (Thompson's), bronze-purple; self.
Favourite (Schofield's), mulberry and rich crimson.	Supreme (Youell's), yellow and dark purple.
Field-Marshal (Schofield's), white and dark purple.	Superb (King's), white and blue.
Great Britain (Hooper's), yellow and purple.	Sulphurea elegans (King's), sulphur; self.
Grand Sultan (Youell's), dark puce; self.	White Sergeant (Hooper's), white; self.
Hero of Bucks (King's), gold and maroon.	Wonderful (Hooper's), yellow and rich bronze.
Lord Hardinge (Gossett's), straw and purple.	Wellington (Hunt's), maroon; self.
Lady Sale (Hooper's), dark purple.	Yellow Climax (Bell's), yellow; self.

The above thirty-six varieties average 1s each, or 9s the dozen. T. APPLEY.

* Self—a flower all of one colour.

[ERRATA.—At page 169, first column, 27th line from the top, for "plants," read "pots." Same page, second column, 2nd line, for "or in a bed not properly prepared," read "but in a bed properly prepared."]

GREENHOUSE AND WINDOW GARDENING.

CALCEOLARIAS.—These may be called the next best class of flowers for window and pit culture, after the geraniums and fuchsias; and, like them, they have always been favourites with those who know them, and grow them for summer flowers. The florists have taken them up of late years, and improved them wonderfully in size, shape, and markings, but they committed a sad mistake in discharging some very beautiful blotched and self-coloured ones, that were in high repute between 1834 and 1840; for it must be remembered, that the present race of calceolarias are of very recent origin, and, with the single exception of the fuchsia, are the youngest tribe which have won the smiles of the florists, (shame be to them for neglecting our old favourite sorts!) for the pansies began to attract attention much about the same time as the calceolarias.

The first hybrid calceolarias were raised near Edinburgh, and flowered in the summer of 1830, and the first account of them was given to the world in Jameson's Philosophical Journal for July of that year, by the late Dr. Graham, then professor of botany in the University of Edinburgh. The late Mr. Young, nurseryman at Epsom, bought that collection, and introduced them to England in 1831, and their fame soon spread throughout all the land, making a great stir among gardeners; and in less than six months afterwards, we had finer colours, and more marked characters among them, than is to be met with in the present day. The present race of fancy calceolarias are certainly most beautiful things, and are extraordinary instances of the powers of cultivation, aided by the hand of the hybridiser, over the wild forms of nature, in so short a time. Yet these beautiful plants would have been far more extensively cultivated and sought after, if the family character had not been reduced down to one uniform strain, so as to come into mathematical precision in respect to form and general outline of the flower.

The industry and perseverance of florists, and the rules they have laid down for testing the produce of their labours, are beyond all praise; but the race between the different growers is so keenly contested, that unavoidable mistakes, with respect to breeders, are often committed. No matter what good properties a plant may naturally possess for the purposes of general cultivation, if it does not include the "go-ahead" principle, and can reach the winning-post "neck-or-nothing," it is utterly discarded; and once the tide of fashion is led into a smooth channel, it is useless to endeavour to stem the current. No one knows all this better than a florist; but he must live like other honest people, and what brings him in bread and cheese is not to be compared with other people's fancies.

Great treasures are left in store, therefore, for the amateur who has time and inclination to follow out the art of hybridising, without allowing himself to be trammelled by mathematical rules, or any set of fixed laws whatever, and he need have no apprehension about gardeners being able to compete with him in that department. In these days they have no leisure for such pursuits; and if they have the inclination, they can only take a bite here, and a snatch there, without any regular plan of proceeding.

Slipperwort is the English name of the calceolaria, because the little weeds from which our present stock is descended had gaping small flowers somewhat in the shape of a slipper; but the new ones are more like globes and balloons than anything else, and the toe end of the old slipper must now be puffed out like a full blown bladder, without the least wrinkle or puckering of any kind, and moreover be as regular in outline as if cut out with a stamp, otherwise it will not come within the florist's *ultimatum*. Some of the varieties have really attained this—so called—perfection, and their spots, stripes, and other markings, are nearly endless.

Notwithstanding all this diversity from the original stock, and having through twenty successive generations been removed as far from their wild alpine ancestors as it seems possible to reduce them, they yet maintain the *constitutional character* implanted in their wild parents through the lapse of ages in a peculiar climate. The whole race are natives of the western declivities of the great Andes' chain of mountains, in South America, from Peru, through Chili and Patagonia, and some of the adjacent islands. In some of their localities on the hills, they are so numerous as to give a peculiar cast to the vegetation, as our own buttercups do here. Those from which our present calceolarias have originated, inhabit a belt, or zone, on the hills in Chili and the southern provinces of Peru, not far below the snow line, the melting of which often supplies them with summer moisture; and the south wind, loaded with vapour from the Pacific, plays on them for eight or nine months in the year, so that they enjoy a temperate, moist climate; while the vegetation immediately below them, along the plains to the sea, is withered with scorching heat and want of rain. They have thus acquired a peculiar constitution, from which their more civilized offspring seem unwilling to depart; and a constitution, too, which peculiarly fits them to the damp atmosphere of England. Actual damp in cold pits, however, is certain destruction to them. Their alpine nature requires a uniformly cool, moist air, in constant motion around them. A warm close room, therefore, will not do well to grow them in, unless they are turned outside in mild weather; and in that case, there is no place better than a window for them. Fire-heat is disagreeable to them at any stage of their growth; even our summers are generally too hot for them; and it is in the autumn and spring that they enjoy, with us, the nearest approach to their native climate.

This "relation between climate and vegetation" is almost a new kind of study among gardeners; and it is of the utmost importance to facilitate the progress of superior cultivation. The climate of Italy is much the same as that of central Chili, but the climate of Chili varies considerably in the different districts. Thus, in the calceolaria districts, we have seen how cool and moist the atmosphere is, while in the northern districts of Chili, all along its coast line, the great heat and dryness of the air renders the vegetation of those plains more like that of the Cape colony than that in which the calceolarias flourish, just on the hills above them. Therefore, with the same general climate as Chili, the Italian gardeners may and will excel us in rearing the fragrant tuberoses, the gay belladonna, and even the Peruvian daffodils (*Ismene*), from the country of the calceolarias, and yet not be able to approach our success in the culture of the calceolarias themselves. So much is vegetation influenced not only

by climate, but, also, by the state of the atmosphere in a given locality. Hence it is, that plants from the same country, and under the same latitude, often require very opposite treatment. Hence, too, the necessity of keeping the roots of calceolarias much cooler than their herbage; their natural watering, on the hills of Chili, being from the melting snow on the hills above them. No lukewarm water for them, therefore, for it is almost impossible to keep them too cool at the roots under cultivation; and they are the first to suffer from exposure of the pots to a dry or hot atmosphere. No plants delight in double potting more than these; and cold water is, at all times, more congenial to them than when in a lukewarm state.

The generality of plants are much improved in health and vigour, if the soil about their roots is kept somewhat warmer than the atmosphere they live in; because, in all warm countries, and even in more temperate localities, it is found that the average temperature of the soil is always some degrees warmer than the surrounding atmosphere; and this state of things we endeavour to imitate, by watering our pot plants with lukewarm water—more particularly in cold weather. Plants like the calceolaria, however, which live naturally near the snow-line in hilly countries, have the usual course reversed. Their roots are in a much cooler state than the air they breathe; with the melting of the snow, the ground is always more or less moistish, and at a temperature much lower than the surrounding air.

The first fruit that ever I tasted, I believe, is the produce of a little plant that for years I was accustomed to see in flower early in June, with a collar of snow round its neck. Yes, as soon as the snow got thin enough to allow this little alpine to push up its leaves and flowers, it would bloom in myriads along the edges of the snow, with flowers just like our strawberry blossoms, and as clear white as the snow which surrounded and watered them. Yet a frosty night at that season would destroy a year's crop, as happens in our gardens but too often. This shews clearly that they require a warmer atmosphere for their flowers than is natural for their roots; and, of course, pure air is at all times what they breathe. Hence the great assistance gardeners and others derive from the study of climate with reference to vegetation, and the peculiar conditions under which some plants thrive in their native places.

The fruit of the little plant alluded to is called the Cloudberry. It is about the size, shape, and colour of a strawberry, and in hot weather, at the end of summer, is as refreshing and wholesome to eat as any of our summer fruits; but I forget about the flavour.

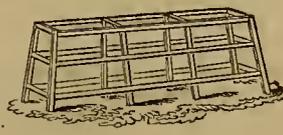
No codling, therefore, for our calceolarias. In summer, however, the pots should be well secured from the sun, and be enveloped in damp moss, if possible. They will grow in any light rich soil; but leaf-mould, peat, and sandy loam, in equal proportions, will keep them more healthy, and less liable to mishaps, than richer composts. They are very glutinous, nevertheless, and will get to a greater size in a more rich and adhesive compost; but that sort of forced growth is against their keeping qualities. They are propagated from slips, or cuttings, after they have bloomed in summer, and the little plants are kept over the winter in cold pits and greenhouses in four-inch pots, with very little water and abundance of air. As soon as they begin to move in the spring—about the end of February—they are potted into pots one size larger. They now grow rapidly,

and take large doses of cold water, and manure water twice a week. As soon as one sized pot is getting full of roots, they are shifted into the next larger one in rapid succession, till the middle of May, when their flower-stalks are pushing up strong. No amount of air is too much for them after the flower-stalks appear; and if the night air is just above the freezing point, it is more natural to them, and they delight in it, as well as to be watered at this season with ice-cold water. This I have proved over and over again; for, as is well known to many of the readers of THE COTTAGE GARDENER, I was once the greatest grower of calceolarias in England, and my fingers always had an itching for experiments. The best preventive against insects, is to give calceolarias abundance of cold night air, and to keep them very cool at the roots. When they are pampered with warm water and close comfortable lodgings, as one might say, they become the prey of insects directly, as you may easily prove by keeping a plant in a warm room, and his fellow just outside the window; and it would be interesting for the reader to try all our rules by direct experiments. No matter how humble your station, if you shew by a fairly-tested experiment a better way of growing any plant, all the best gardeners will be obliged to you for telling them of it; and you need never be afraid of writing about any plan of growing plants, for fear that you cannot spell the words right, or that you might use bad grammar, and all that sort of thing. You never think it a difficulty to write a letter to any of your friends, and are we not all of us friends? We never think anything about fine words, or good spelling either—facts are much better. The editors and printers will put all that to rights—it is their business: they cannot dig, very probably, like us; but the most confused letter that you ever saw, they can make as smooth and even in print as an onion bed, and nothing pleases them better, if it is about anything new or useful.

D. BEATON.

THE KITCHEN-GARDEN.

RHUBARB FORCING.—First cover the plant either with a sea-kale or common garden pot (twelve inches across), but a butter firkin or chimney-pot is still better; the leaf-stalks becoming much longer and finer. Whichever vessel is used, cover it two or three feet all round with fermenting dung. As by this mode the plants are very liable to be broken, their leaves soon touching the sides, a frame is much less objectionable, formed, by driving stakes into the ground on each side of the bed. These are to be three feet high above ground, and the space between the two rows of stakes two feet at the bottom, but approaching each other, and fastened by cross pieces, so as to be only fifteen inches apart at top. To the sides and top, stout laths are fixed to prevent the dung falling upon the plants, are represented in the accompanying sketch.



The dung may be either fresh, or that which has already partly undergone fermentation, placed all round the frame eighteen inches thick, and the top covered with long litter. The temperature in the interior

should have a range from 55 to 60 degrees. If it rises higher, two or three large holes made through the top soon corrects it.

CABBAGES.—Any vacancies among the autumn-planted, caused by vermin, or the effects of winter, should now be filled up from those pricked out for the purpose, and for supplying strong plants for spring planting. The plants should be raised with a hand-fork or trowel, so as to disturb their roots but slightly. The yellow leaves should be collected away from all cabbage plantations, and hoeing and surface-stirring well attended to, in suitable weather; for it will well repay the trouble, by an earlier production of healthy luxuriant produce.

CAULIFLOWERS which have stood in frames, or under the shelter of glass, should now be well hardened. Indeed, the frames may now be altogether removed from them; and, if frost should prevail, hoops and mats, or evergreen boughs, straw, pea haulm, or any similar covering, will answer the purpose of protection. Those who have warm borders, or banks, or sheltered situations of any kind, and the soil well pulverized, should, there, at once get a quantity of the strongest plants set out. Young plants now coming up in pans, &c., should be pricked out as soon as they can be handled, into other pans, an inch apart; or on a slight hot-bed, sheltered with hoops and mats; or under a light or hand-glass, for a short time, if these shelters can be spared.

JERUSALEM ARTICHOKE and **HORSERADISH**, where not already trenched out, and new plantations made, should be done so at once. The small and refuse artichoke tubers should be saved for the pigs or poultry, for which they are excellent food. Where good is preserved, artichokes are a most excellent food for enticing and keeping them at home.

ROUTINE WORK.—Sow *peas* and *beans* in succession, *Salmon* and *Turnip radishes*, and *mustard* and *cress*. The two last-named wholesome salad plants may be grown well in the cottage window, in pans or boxes; and shifting it to the chimney corner of a night will forward it much. *Broccoli* now coming in should be protected by breaking over them a leaf or two, or by pulling off two or three of the yellowest leaves from the base of their stems, and placing over them for protection. Early varieties of *rhubarb*, in the natural ground, may be much assisted by placing a few evergreen boughs round about their crowns, and by adding a little fern, heath, straw, or pea haulm, lightly over the crowns, and between the boughs.

MUSHROOM BEDS should be kept clear from short litter; and, where necessary to be covered, which is the case with those in cold sheds or out of doors, a little fresh litter should occasionally be applied; which is a much better system than changing it to any extent, or all at once, for this is apt to cause various checks, which are not so easily remedied. Stable dung should be got together for succession beds, and placed in small ridges, and turned over and left open and light, to partially dry; open sheds, or under stack stands, are the best places for putting it to dry.

FRAMES and **PITS** should now be well attended to. Early *cucumbers* should be methodically stopped, thinned, and trained, always rubbing off every show of fruit, until the plants are strong enough to carry and mature them in perfection. When leaving fruit to be matured, rub off all, at each joint, as soon as seen, with the exception of one, and that the strongest and boldest looking. Those thus left should be again thinned as soon as the blossom is dropt and

the fruit set, only allowing a given quantity in various stages of growth to swell off. For being over-covetous of much fruit is often the means of only producing deformities, exhaustion, and disease. Whenever needful, linings, if well protected with furze, faggots, or other refuse, and kept topped up to the upper edge of the frames with dry, sweet stable manure, will produce a lasting, kindly, regular heat; which is much more essential for the maintaining good health, and obtaining abundance of fruit, than sudden changes. A succession of both *cucumbers* and *melons* should be sown; and plants already potted, kept close to the glass, to maintain sturdiness.

EARLY POTATOS.—Every available article, at all fit for fermenting purposes, should be collected together, for making slight hot-beds, for producing early potatoes in trenches. Cart out earth enough to make a bed one foot deep, with earth enough left in a ridge, on each side, to command a foot in height, above the potato plants, for forming a shelter, and for placing across poles or rough scantlings, to bear a slight covering of any easily-procurable material. The best plan for preparing the potato plants for plantings in such temporary places, is to place moderate-sized whole potatoes thick together, in shallow pans or boxes, putting these in a little heat,—such as the front of cucumber or melon pits, frames, or hot-houses, &c., covering them, but thinly, with light earth. When the shoots are two inches high, transplant them into the trenches. No plant does better than a potato, transplanted. When the stems get high enough to earth up, the soil in ridges, left for shelter on the sides, should be made use of for that purpose.

Radishes and *Horn Carrots* already up should be thinned in due season; the surface between them stirred often, and sprinkled in good time, during fine afternoons, with tepid water; and if, by any accident, they have become a little drawn up, sift among them some light earth and charred ashes. *Lettuce* plants should be also similarly treated.

G. W. J., & JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 15.)

THE unusual mildness of the present season promises a cold, frosty spring. Every lady who has neglected to prepare her borders in November, or who has, since that period, caught a new idea, should address herself to the work without delay, if the open weather continues, as nothing can be done during the prevalence of frost. New borders may now be formed, and left to pulverize and settle, before the planting time begins. If the new soil is strong and heavy—if it is even a clay—spread coal ashes rather thickly over the newly-dug bed, and leave it to digest them. The effect of coal ashes on clayey soil is marvellous. I have myself experienced this, and, therefore, can speak confidently. My own garden soil is a very strong one, almost approaching to clay, and was once a shrubbery of laurels and other trees. When first cleared, and laid out in beds, the newly-dug soil lay in almost hopeless lumps, hard and unmanageable. After throwing a thick coating of coal ashes over the soil, I left it for a little while, perhaps a month or more; when, to my joy, the

lumps broke up into mould, and I worked with ease and comfort. I have ever found this to be the case; therefore, ladies need not give up a situation that suits their taste, because the soil is hard and cold; they need not lament over their borders, because they are wet and comfortless; only give them a good supply of ashes, not *very* finely sifted in the worst cases, and they will find in a few weeks that the spade and trowel will move with ease. It is best to do this before the winter, because you gain time, and the frosts help you too, but it is not too late to do it now; and, as there is every probability of a cold late spring, the garden will not be much behind-hand.

In mild open weather during this month, hardy bulbous roots may be planted—hardy perennials and biennials also, if not done in the autumn. Shrubs may be moved also; and shrubberies should be cleared from long rambling shoots, and whatever is unpleasing to the eye. Cut them all away; let an air of neatness prevail, so essential in a lady's garden; and either dig among the shrubs, or clear and rake away long dead grass and litter, according to the ground on which they stand. From my own experience, I should advise ladies to have as little *dug* ground as possible among shrubs and bushes, for it is a perpetual trouble; weeds spring up incessantly, and it is very difficult to get at them. The rose and sweet-brier bushes tear our bonnets and collars to pieces, and we tread most vexatiously on our raiment, when stooping to avoid them. Thus, as in some situations in life, often brought on by our own folly, we cannot avoid one evil without encountering another; and I have come from among my shrubs with dragged dress and crushed bonnet, day after day, in the vain attempt to destroy the persevering endless-rooted weed that infests my garden. It has, however, defeated my efforts; and I have now turfed up the border, leaving a very small circle round each stem; and this plan I recommend every lady to adopt who is her own gardener. It would be well for some of us, if we "turfed up" much that we do, and take delight in; much that, at best, is weedy and unprofitable, and very often ends in guilt and grief. We have within us, ground very difficult to till; our hearts are harder than clay; our wills more stubborn than thorns and briars; and every evil more deeply-rooted than a dandelion. Clay may be softened, briars cut down, weeds rooted up, but how are *we* to be broken up and fertilized? This is a serious question. Let us not spend all our time and skill upon fruits and flowers, useful and lovely as they are; but let us learn from their requirements how much we need culture too; and that though many ways are devised to enrich the soil, there is but one way to improve the human heart. Let us seek it, and use it diligently.

Few, and far between, are the flowers of this season. The lovely lilac primrose has been persuaded to think this winter only a chilly spring, for her blossoms have been peeping among the soft green leaves for some little time. The common primrose, too, I saw, long before Christmas, in the sheltered garden of a friend; but they did not give me pleasure, they looked cold, and pale, and languid, as if awakened from their sleep too soon. Nothing looks healthy—scarcely pretty—when out of season; but when once we feel ourselves again bounding towards the sun, an early flower delights us; and I am already beginning to glance at the hedges and warm banks, in search of the early buds. I do not like primroses in borders, they belong so exclusively

to the woodland treasury, to "the banks and braes of bonny" England, that they do not look half so charming among garden flowers, as when carpeting the newly-cleared copse, sprinkling the fields, and peeping from under every wild entanglement of hedge and brake. There they are in their native loveliness, and charm us with their delicate blossoms, and equally delicate scent, which, in the full flowering season, greets us as we pass.

The Winter Aconite is a valuable addition to the scanty flowers of winter. Its rich yellow blossoms rest on the ground, below the reach of cutting and dashing winds. It is found in the woods of Italy also, and some other parts of Europe, and is a deadly poison. Where there are children, it should be excluded from the garden.

The Rosemary is blooming also; it is a fragrant as well as a pretty flower, and useful as a flavouring herb in some parts of cookery. It belongs to southern Europe, and is found among the broiling deserts of Africa, so that it may be called a citizen of many climes. It is used in Germany in some of their religious ceremonies; and was once regarded, in days of romance, as an emblem of constancy; and in bygone days, it was used in England both on nuptial and funeral occasions. It has much to say to us, therefore, of times and seasons—joys and sorrows—and is an interesting as well as kindly visitor at this dark season. We might fill our gardens with many plants that would talk instructively to us, if we studied their nature and their history. They would form a little library of useful knowledge; and we should not content ourselves with admiring "the pretty blue flower," or "the bright and handsome red one," as we often do. I feel my own ignorance on these subjects, and how much of enjoyment and interest I lose by it; therefore, I would urge "my sisters" to gain all the information possible, relative to their history, their habits, and their properties. A garden is a beautiful and rational recreation; and the more we see and understand of God's perfect workmanship, the more interest and delight it will afford. The Garden and the Field are the cradles of Englishmen; and we shall, I trust, be old indeed when the pleasure and profit we derive from them shall cease.

TO CORRESPONDENTS.

STRAWBERRIES (*E. Marsden*).—The best early strawberry is Keene's seedling; and the best, for the main crop, Myatt's British Queen. The best time for planting is from the beginning of August to the end of September, but the earlier the better. Trench the ground and manure it now, and plant two rows 18 inches apart, and the same distance from plant to plant. The bed being so narrow, enables the fruit to be gathered, and all necessary cultivation attended to, without treading on the bed. This is important, for it ought never to be dug until the plantation is broken up.

SALT WATER FOR HYACINTHS (*W. X.*).—A little salt in soft water is no doubt useful for hyacinths and other plants; but the dose is so liable to be overdone, or not given at the proper time, that we never recommend it. We have found nothing so safe as the soap-water from our wash-hand basin in the morning, without the addition of other slops. For twenty years we have used this water with the best effects for all kinds of house-plants; and this is generally the thing we mean when we say "soap-suds." The morning is the best time, at this season, to water plants; and every house has the daily supply of this useful article every morning.

GREENHOUSE CLIMBERS (*W. X.*).—You say that you have *Maurandya Barclayana*, *Sollya salicifolia*, *Lophospermum scandens*, *Lonicera implexa*, *Tweedia cœrulea*, *Passiflora princeps*, *Kennedyia monophylla*, *Clematis azurea*, *Clematis grandiflora*, and *Jasminum revolutum*. These are all good—but your *Lonicera* and *Jasminum* will do out of doors,—even in your "bleak situation." If you can train them against a wall with any aspect, s o

much the better. The perpetual-flowering rose you require for a greenhouse must be of the "tea-scented" class. If intended to be planted out as a climber or pillar rose, almost any of the strong-growing old sorts will answer in good rich soil; and some buds of the newer sorts may be inserted afterwards. The newest and best of the tea-scented roses is, unquestionably, *Vicomtesse de Cazes*. It was exhibited last summer for the first time in England; and is of a beautiful buffish red, and charmingly sweet; but it costs 3s. 6d. But to begin with, take *Bougere*, *Triomphe de Luxembourg*, or *Belle Allemande*, all for a shilling each, and bud the others on as you can get them.

VENTILATING A GREENHOUSE (W. X).—Your plan of ventilation, by having openings into a stable at the back of your greenhouse, would suit your plants very well—but would such a current of air suit the horses? The rush of air will often enter from the stable, by the top ventilators, and out by the front sashes, according to the direction of the wind, and, at such times, the ammoniacal gases from the stables would enter the greenhouse, and might be unpleasant to you. It is true that, in your instance, such gases would be rather beneficial to the plants than otherwise. A hay-loft over the stable, with a window at each end, or even at one end, would be more favourable for this kind of ventilation. Please to recollect there will be a back current at times, and any dust about the loft might be carried into the greenhouse. The thing can be done well enough, if these things are kept in view.

VENTILATING A COLD PIT (Ibid).—The plan you propose, by having an opening near the ground, on one side of the pit, and near its top on the other, is often to be met with, and a capital plan it is when well attended to. In piercing cold winds, the openings near the ground would require to be shut up, to prevent a cold draught. The openings, both at top and bottom, would require to be grated, to exclude mice, which would nibble a host of plants in one night. Concrete will not answer for the front of your coach-house—the frost would injure it.

NEGLECTED GRASS-PLOT (Clericus).—The grass on this being very poor and thin, you had better sow it at once with salt and soot, as you suggest. Your plot being 90 feet long and 50 feet wide, you will require two bushels of salt and one bushel of soot. Put this mixture on during rainy weather, but do not add any coal-ashes, unless the soil is very heavy. We should also sow on the plot, in the spring, a little of the grass seeds enumerated at p. 62; first raking the surface slightly, and then rolling it after sowing the seeds.

BEST EARLY PEA (Weston-super-Mare).—The earliest is *Cormack's Prince Albert*, but the *Early Warwick* is nearly as early, and much more productive. Sown side by side, on the 4th of January, *Prince Albert's* were gathered from on the 14th of May, and *Early Warwick's* on the 25th.

GARDEN PARTLY LIGHT AND PARTLY HEAVY (Ibid).—By all means take three inches from the top of each part, and interchange them—mixing the heavy with the light, and the light with the heavy. You will thus easily improve the staple of both. Cut down the elm trees, for no kitchen-garden crop will grow beneath their shade; and adopt the rotation of cropping so plainly pointed out at p. 184. July potatoes may be obtained of any seedsman in Southampton or Winchester.

BEEF (J. W).—The red and the scarlet are the same. Boiled uncut soft, without being previously peeled, and eaten alone, after being peeled, with vinegar, it is one of the best of salads. Boiled similarly, peeled afterwards, and then having boiling vinegar poured over it, it makes an equally excellent pickle. If your wife will try these, she will never again ask if "beef is good for anything but cattle."

RABBITS-DUNG AND PEAT-ASHES (Ibid).—This will make one of the richest of composts, for cabbages, brocoli, &c. Do not manure your ground for potatoes, it increases the disease if they are attacked. Haricots, boiled for three or four hours, become quite soft, and are very good, eaten with plain melted butter.

OLEANDER SCALE (J. N. B.).—If you will refer to what we said, you will see that we directed you to brush over the scale, not over the leaves, for which spirit of turpentine is too strong. If the leaves are so thickly infested with scale that you cannot put on the spirit to the insects only, then the best mode of submitting them to its influence is to cover the plant over with a sheet, and place underneath it, on a hot iron, a little of the spirit of turpentine in a saucer. The vapour will kill the scale, after one or two applications.

GRAFTING APPLES (J. F. Yeovil).—This may be done in the course of the present month, before the buds begin to swell. If you only require two dessert apples, you cannot do better than by selecting the *Pitmans Nonparil* and *Sturmer Pippin*. You will find a list and description of sorts at p. 33.

MUSCLE AND PARADISE STOCKS (J. D. Wington).—Muscle plum stocks are known to every nurseryman. They are plants of the muscle plum, of a size sufficient for budding or grafting. *Paradise* or *Doucin Stocks* are raised from layers or suckers of a dwarf apple-tree. The roots of such stocks are produced nearer to the surface than are the roots from crab stocks, and they form smaller trees from the grafts worked upon them.

STANDARD GOOSEBERRIES AND CURRANTS (Ibid).—The cuttings for forming these must be treated exactly as for dwarfs. The top bud will produce the leader; and all lateral buds being rubbed off, they may be trained, as the stem, to any height you please.

CURRANTS (Ibid).—The Black Naples, Knight's Large Red, and the White Dutch, are the three best varieties.

BRUNSVIGIA JOSEPHINE (J. B., Stoke Newington).—You say, "that from directions in the Hon. W. Herbert's work, on Bulbs, and for other reasons, you have grown this plant in a pot, with its bulb entirely above the earth; that, after two or three years, it bloomed well, but that last summer it did not bloom;" and you ask

for our advice. You surely cannot mean Dr. Herbert's great work on the *Amaryllis* (1837), for, if you do, you have trusted to some misquotation from it. We could almost repeat all the precepts on culture, in that work, from memory, but cannot lay our hands on it now, to refer to particular plants or pages. However, having long enjoyed personal intercourse with the lamented author, we can state, positively, that he was incapable of writing such bad advice, as recommending, or in any way approving, of keeping any bulb in cultivation above the ground. The "other directions" you mention, are mere stock phrases, which may, or may not, lead to success. Your own *Brunsvigia Josephine*, or, more properly, *Amaryllis Josephine*, is a case in point. The fact of its not flowering last season, as formerly, is a common occurrence; and the reason is, that it spends too much of its energy by successive flowering, and requires a season of rest (from flowering) to renew its strength. You may, therefore, expect to see it flower again next autumn, and it is not advisable to alter your present treatment, till that is ascertained. Pray endeavour to obtain a cross between it and *Belladonna*; there is no question about their being able to produce an offspring. Use the pollen of the *Belladonna*.

DRAINING (A Subscriber, Mustock).—Your heavy, cold, damp, marly garden, on a clay subsoil, will be greatly benefited by a deep drain under the paths round it. But why not have some rather shallower drains across the beds, falling into the main drains under the paths? This would complete your drainage, and surprise you by the improvement of your crops. Be sure to provide a good outfall for your drains into some neighbouring ditch.

HARDY ROSES (Miss C. Robson).—The following are good for a cold northern situation. You had better grow them as dwarfs. Of *Damask Perpetuals*, *Antinous*, double, and dark crimson; *Bernard*, salmon, very double, and fragrant. Of *Hybrid Perpetuals*, *Comte de Paris*, lilac, and very large; *Fulgure*, bright pink, and very double; *Lady Fordwich*, crimson, very double, blooms in clusters. Of *Bourbons*, *Bouquet de Flore*, reddish carmine, large, and double. Directions for grafting and budding will be given very soon.

VERBENAS (Dianthus).—You will find a list of these at p. 159 of our fifteenth number.

INK FOR WRITING ON ZINC LABELS (Ibid).—"Burrow's and Thorn's Chemical Ink" for this purpose, may be obtained, we suppose, through any patent medicine vendor; but you can make a very good ink by following this recipe. Take of powdered verdigris, 1 drachm; powdered sal ammoniac, 1 drachm; lamp black, half a drachm; and water, 10 drachms. Mix them together in a two-ounce phial, and shake every time before using. It will be ready so soon as the verdigris and sal ammoniac are dissolved, and must be written with a clean quill pen upon the zinc labels.

DARLINGTON HORTICULTURAL SOCIETY (Secretary).—Thanks for a report of the meeting. Professor Johnston, of Durham, was there, and gave an impromptu lecture on the germination of seeds. Such meetings are most desirable; they enable science to shed a light on the path practice has to pursue.

KILLING INSECTS FOR A COLLECTION (V. Rotheram).—Do not use either prussic, nitric, or oxalic acid, for this purpose. They all, more or less, injure the colours of the insects. Nitric acid would absolutely destroy them. Put the insects into a wide-mouthed phial, into which a few bruised laurel leaves have been previously introduced, and then cork it tightly. Or, place the insects in a tin box, with a little camphor, and heat it by the fire. The latter mode helps to preserve the insects. In either case they are dead almost immediately.

CHEERY (W. G. Cherry).—On reference to the advertisements in No. 17, you will see that Mr. Nutt will have no seed to spare until next autumn. His direction is, "Near St. John's Church, Sheffield." Mr. Turner's direction is, "Necpsend, Sheffield." Thanks for your communication.

PLANTING FRUIT-TREES (H. B. Smith).—You have done right in avoiding the low level; we ought to have pointed to this evil, perhaps, sooner. Six apples, for kitchen purposes, may be:—1 *Kewick Codling*, 2 *Mank's Codlings*, 1 *Martio's Free Bearer*, and 2 *John Apples*, or *Northern Greenlings*. Your garden plots seem pretty well arranged; you have, however, a good deal in walks. Plant your other three trees according to our station directions, only do not go below the ordinary soil. Shavings will do no harm. About nine loads of marl would make your land good.

DEODARA CEDAR (W. L. H.).—Your nurseryman is right, about not supporting the leading shoots of *Cedrus Deodara*. We have reared some hundreds, both from Himalayan seed and from cuttings, and we never stake the young leader. It is well, however, to stake the lower parts, to prevent wind-waving. Let us advise you to screen off both wind and sun from the *Deodara*; but not to totally exclude light. Whatever you use as a screen, do not let it quite touch the plant.

DEPTH OF KITCHEN-GARDEN SOIL (Ibid).—Eighteen inches is deep enough; you have done well to take out the limestone mixed with it. Your four plots will do very well, provided your trees are not too near. The vegetables must have breathing-room, at least, between the lines of trees. We will tell you all about parsnips in our next Allotment number.

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 8—14, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
8	Th.	Small Eft seen in ponds.	Narrow Spring Moss.	29 a. 7	v	6 a. 36	15	14 30	39
9	F.	Wild Goose, or Grey Lag, goes.	Roman Narcissus.	27	2	7 48	16	14 31	40
10	S.	Q. VICTORIA MAR. 1340 Sea Curlew goes.	Mezereous.	26	4	8 57	17	14 32	41
11	SUN.	SEXAGESIMA SUN. House Pigeon lays.	Red Primrose.	24	6	10 3	18	14 32	42
12	M.	Primrose flowers.	Common Hepatica.	22	7	11 8	19	14 31	43
13	Tu.	Partridge pairs.	Polyanthus.	20	9	morn.	20	14 30	44
14	W.	Valentine. Golden-crested Wren sings.	Yellow Crocus.	18	11	0 11	21	14 28	45

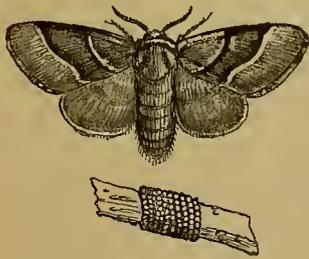
SEXAGESIMA (Latin for sixtieth) is always the second Sunday before Lent; and is so called, because about sixty days before Easter Sunday.

VALENTINE was a Christian priest, martyred at Rome about the year 270; and there is not a known passage in his history entitling him to preside over love letters, or to be the namesake, on this day, of every lover in Christendom. Chance alone appears to have raised him to the dignity. The anniversary of his martyrdom happening on this day, during which the idolatrous Romans celebrated their feast of Lupercalia, when our early Christian bishops established a festival to supersede it, for the recreation of their early converts, this was held on Valentine's day of commemoration. Now, one of the amusements, or ceremonies, of the Lupercalia, was putting the names of young women into a box, from which the young men drew them, as chance directed. Instead of the names of young women, the Christian pastors had the names of saints put into a box on this day; and whichever saint a man or woman drew, was to be his or her patron for twelve months, or until the next St. Valentine's day. Drawing sweethearts, however, was too pleasant a recreation to be entirely superseded; and though the young converts might draw saints under the supervision of their clergy, they appear to have continued in private to acquire sweethearts by a similar lottery. In various forms and modifications, this has continued ever since; the only attempt at a compromise being that, instead of "lover," the more saintly name of "Valentine" has continued to be bestowed upon the chosen mate. The practice of sending poetical addresses, on this day, is not so general now as it was formerly; and yet about two hundred thousand more letters than usual pass through the post-office on this day every year.

PHENOMENA OF THE SEASON.—As we observed last week, this is

a month of thawing and fogs; and we dare say that not all of our readers could very readily explain what a fog is. Why is the air damp and thick only occasionally? Air, in proportion to its warmth, will unite with the vapour of water; thus—the steam from our tea-kettle, and from a railway steam-engine, soon fades away in the air, because the air unites with it, or dissolves it; and the warmer the air, the quicker the steam is dissolved by it. So long as the air has no more vapour of water, or steam, mixed with it than it can dissolve, it remains clear and invisible, the same as hot water dissolves a large quantity of Epsom salt, and yet remains bright. But so soon as the water gets cold, it lets go some of the Epsom salt, which again appears in crystals; and so the warm air, when it has in it as much vapour of water as it can hold, when it becomes colder lets go some of the vapour; and this, if slight, is called a *mist*, but if abundant or thick, a *fog*. These, then, are the vapour of water, deposited or dropt by the air, as it becomes cold. This explains why mists and fogs are seen over one field, or over part of a field, or garden, and not over the remainder. The part where the mist appears either is worse drained, or, from some other cause, is colder than the other parts; and, consequently, the air over it becomes cold faster than over the other parts, and therefore deposits its vapour first.

INSECTS.—At this season occurs one of the opportunities of which the gardener should take advantage, to prevent the occurrence of one of the worst ravagers of his trees—the caterpillar of the Lackey, or Barred Tree Lackey Moth (*Clistocampa neustria*)*. The eggs of this insect may now be detected easily, in broad bands round the twigs of our pear, apple, and other trees. They are arranged with such admirable art, that they seem set by the skilful hands of the jeweller. (See the annexed drawing). Each bracelet, as the French gardeners call



	FEB.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
8	Highest	Snow.	Cloudy.	Cloudy.	Frosty.	Frosty.	Frosty.	Snow.	Cloudy.
	& lowest	29°—26°	46°—28°	38°—35°	45°—27°	35°—18°	46°—29°	30°— 5°	52°—44°
9	temp.	Cloudy.	Fine.	Showery.	Frosty.	Frost.	Frosty.	Snow.	Cloudy.
		36°—27°	51°—43°	39°—34°	44°—32°	36°—27°	45°—26°	34°— 4°	51°—36°
10		Cloudy.	Cloudy.	Cloudy.	Fine.	Snow.	Frosty.	Snow.	Fine.
		32°—27°	51°—41°	42°—31°	43°—31°	35°—22°	41°—22°	36°—22°	49°—37°
11		Cloudy.	Showery.	Cloudy.	Fine.	Snow.	Frost.	Frost.	Fine.
		41°—37°	52°—47°	41°—26°	39°—30°	34°— 3†	44°—25°	40°— 6°	47°—30°
12		Fine.	Cloudy.	Fine.	Frosty.	Frost.	Fine.	Frost.	Fine.
		51°—38°	54°—30°	41°—27°	39°—22°	32°—12°	45°—36°	37°— 9°	48°—36°
13		Showery.	Fine.	Frost.	Frosty.	Snow	Cloudy.	Frost.	Cloudy.
		51°—44°	52°—28°	42°—13°	32°—23°	38°—32°	46°—27°	46°—16°	51°—47°
14		Cloudy.	Fine.	Frost.	Frosty.	Fine.	Fine.	Cloudy.	Rain.
		52°—41°	52°—37°	39°—10°	42°—32°	45°—27°	48°—24°	45°—39°	53°—48°

it, contains from 200 to 300 eggs, fastened by their ends, in a series of from 15 to 17 close spiral circles, round the twig. The spaces between the eggs are filled up with a tenacious brown gum, which protects them from inclement weather, as well as from all attacks, except those of man. The eggs, thus placed, look like a ring of seed-lac, and we think its name may have been thence derived; they are easily crushed by the gardener's knife. The caterpillars, striped lengthwise, blue, red, and yellow, slightly hairy, and with a white line down the back, appear from these eggs in the April or May following. They congregate early in the morning, or during rain, in large nests at the forks of the small branches, and are then easily crushed. They enter the chrysalis state at the end of June, and then they are to be found in cocoons, or oval webs, powdered with white or yellowish dust, between two leaves, &c. The chrysalis, or pupa, is longish and dark brown, in which state it remains for three weeks or a month. In July the moth appears; its colour is light yellow, or reddish yellow-ochre. The upper wings have a darker band across their middle, which band is bordered by two light cross-lines; the fringes of the wings are whitish, spotted with brown; the lower wings are of a uniform brownish or light-yellow colour. The male is readily known from the female by its comb-like (pectinated) antennae, and thinner body. The insect flies only at night, and, consequently, is rarely seen. It often appears in considerable numbers, and does not confine its ravages to fruit-trees, but attacks many other trees—such as beeches, elms, poplars, oaks, and even pines. In May, when the caterpillars are living in society, the nests containing them should be collected and destroyed. Care must be taken when collecting the nest, for if the caterpillars are much disturbed, they let themselves down to the ground by means of a thin silken thread, and escape. In July their cocoons should be looked for on the trees, between the leaves in the roofs of sheds, in hedges, and even on the tops of walls.

* This insect is a striking illustration of the trouble and confusion caused by changing scientific names. Stephens and Curtis call it as above; Kirby and Spence call it *Trichoda*; Latreille, *Bombyx*; Ochsenheimer, *Gastropacha*; and Leach, *Lasiocampa*.

† This temperature was 3° below zero, that is, 35° below the freezing point of water; and it is the third time of the thermometer falling so low during the present century. On the 9th of February, 1816, it fell 37°; and on the 19th of January, 1833, 36½° below freezing.

THE truth of the Eastern proverb, "Can the Ethiopian change his skin, or the leopard his spots? then may ye also do good that are accustomed to do evil," is well illustrated by the obstinate refusal of most cottagers and gardeners to plant potatoes in the autumn, rather than late in the spring. So great is the prejudice in favour of the old time of planting, that we actually know a jobbing gardener at Fareham, in Hampshire, refused to plant potatoes in the autumn, preferring, as he said, not to be employed, "rather than to be laughed at in every beer-shop he went into!" Even one of the intelligent cultivators of the gardens at Dalkeith Palace, Mr. W. Anderson, seems reluctant to admit the benefit, though he relates the following facts:—

"I marked off two acres, and as soon as the growing crop was removed, which was early oats, I had it deeply ploughed, cross-ploughed, harrowed, hand-picked, and rolled repeatedly, until reduced to a fine tilth, and the weeds totally exterminated. The soil a light gravelly loam, resting on a subsoil of the most tenacious and impenetrable clayey nature, drained the previous year according to Mr. Smith of Deanton's system; but, owing to the subsoil plough never having been used, the drains were not so effective as they might. The drills were then formed 38 inches apart and 7 deep, and the manure applied in the usual manner. The previous damaged crop was now being dug out, and all apparently sound potatoes were carried to the prepared ground, and then dropt, whole, 12 inches distant in the drills; they were then covered 3 inches deeper than ordinary, and thus left. In March I found them perfectly safe, and germination just commencing. Fearing a recurrence of the calamity of the preceding year, I had them harrowed across with a light harrow, in order to remove the additional covering; and having procured a quantity of beans, I directed one to be dibbled between each potato as a reserve. The same culture suiting both, they flourished equally. The beans ripened early in September, and were cut, tied in bunches, and placed three together on the headlands until perfectly dry; they were then stacked, and proved a most excellent crop indeed. On the 18th of October, the potatoes were dug out, consisting chiefly of what are called "cups." The crop proved superior, and a remarkable feature in it was an utter absence of small ones. I disposed of the produce, and, including the beans, realized, according to the most moderate calculation, for the two years, £100. It must, however, be taken into consideration that markets averaged just then rather above the ordinary standard prices. At the same time I cannot draw from this any inference in favour of autumn-planting, but that it is an excellent and most desirable mode of preserving the bud from premature excitement, and the consequent ruinous system, often resorted to, of disbudding, thus robbing the tuber of much of the nutriment nature intended should support and strengthen the germinating bud until fit to extract from the soil the properties necessary to its future development. In disbudding, it follows as a necessary consequence, that each successive bud must be weaker than its predecessor; and it is a well-authenticated fact, that the upper or rose end of the tuber starts first, and the bud thrown from that part will yield a heavier and much superior produce than one from any other; hence the necessity for its preservation. The shoots thrown

from the under or side part of the set are but possessed of secondary power; and this fact, simple though it be, is well worthy the remembrance of all who aim at perfection in the growth of this valuable, justly esteemed, and favourite esculent."—*North British Agriculturist*.

We care not what "inference," or what theory Mr. Anderson may favour, to account for the fact—the important fact—that two acres of potatoes, planted in autumn, as fast as they were taken up from an adjoining field where the disease had prevailed, produced "a crop superior, with the remarkable feature in it of an utter absence of small potatoes." Such a testimony as this, even if alone, would justify us in again asking every one of our readers to try—to test by experiment—the recommendation which, for two years, the writer of this has advocated, "Plant in autumn, or as early as you can." But we have another and far stronger testimony now, bidding us once more to urge this really national subject upon our readers' attention; and this is what may be looked upon as the evidence of all Great Britain in favour of planting potatoes *some time between October and the end of February*.

Dr. Lindley, wisely employing the influence he possesses through the Society with which he is connected, has obtained some hundreds of returns of the results in England, Wales, Scotland, and Ireland, from planting potatoes in the autumn and in the spring; and the following is the epitome of those results, with his observations upon them.

PLANTED IN	ENGLAND, IRELAND, WALES.		SCOTLAND.	
	Bad Crops.	Good Crops.	Bad Crops.	Good Crops.
Autumn	11	56	0	4
Jan.—Feb.	11	131	—	—
March	88	136	3	40
April	147	105	13	91
May & June	155	44	10	23

"Shewing conclusively that, for the principal part of the kingdom, *the autumn, with January and February, are the best months for planting*; that March is unsafe, April dangerous, and May and June ruinous. In Scotland, March may be taken as the best month, after the autumn; the rate of loss being about 7½ per cent. in March, 14 per cent. in April: for that country, the May crops, known only in the most northerly districts, may be disregarded. This point may be taken in another view, by comparing the cases of entire escape with the whole number of cases reported upon. The numbers will then stand thus:—

	WHOLLY ESCAPED.	
	ENGLAND, IRELAND, WALES.	SCOTLAND.
Autumn planted. .	22 in 67	2 in 4
Jan.—Feb.	34 in 142	—
March.	9 in 222	20 in 43
April	8 in 250	36 in 104
May and June ...	4 in 200	8 in 33

These facts establish the proposition, that *the earlier potato planting is performed THE BETTER, and the later THE WORSE.*—*Gardeners' Chronicle.*

Again, then, do we ask and warn our readers to plant their potatoes immediately,—to do it at once,—to set to work the day they read this,—for “tomorrow is found only in the almanack of fools.” Again do we say, plant middle-sized whole potatoes; plant six inches deep; do not trample on the ground after it is dug, but plant with the dibble a row as fast as enough space for it is turned over; do not manure the ground; grow a main crop of the kind of potato *that ripens earliest* in your neighbourhood. If these rules are strictly attended to, the potato murrain in 1849 may be encountered by you without fear. Believe us, or do not believe us, yet try the experiment; “ask the question of Nature—*her* reply may be depended upon.”

THE FRUIT-GARDEN.

THE PEACH AND NECTARINE.—We will now conclude what we have to say, at present, relative to these trees.

FIG. 1.

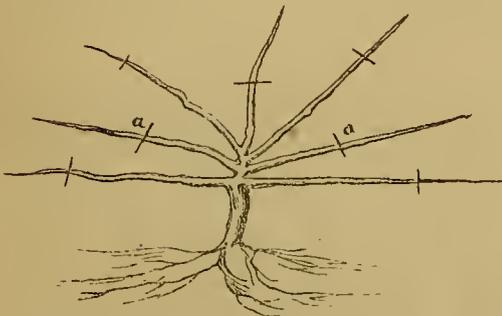
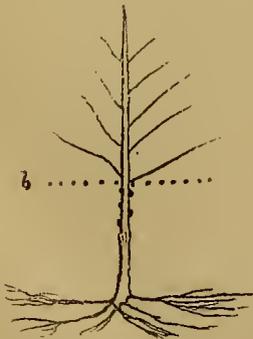


FIG. 2.



PRUNING.—*Fig. 1* represents a dwarf-trained peach-tree, when fine, after one year's training from the maiden state, represented at *Fig. 2*, and as mentioned in our observations last week.

The pruning in *Fig. 1* is indicated by cross lines.

In *Fig. 2*, the dotted line, *b*, shows the branching top, previously described. There it is pruned, and below are the embryo buds, which also have been fully described. *aa* represent two young shoots shortened farther back than the two lower ones; this is in order to secure successional wood near the collar. The centre one, also, is pruned closer, in order to get the bottom of the tree formed before the middle. An explanation of this, also, will be found in our previous paper.

PLANTING THE PEACH AND NECTARINE.—The station being properly prepared, according to our directions on that head, the soil should be flattened a little, or, rather, should be formed with a trifling amount of roundness; the highest part of this roundness being where the collar of the tree is to be stationed. Such roundness, however, must be trifling; the only reason for any being, that we deem it necessary that the point of every root should incline slightly downwards. Roots inserted with their ends somewhat pointing up will be liable to breed suckers; a thing to be studiously avoided. The soil must not be dug out, but the tree set on the ordinary ground level; for when the newly-made station settles, it will be just of the necessary depth.

The roots must now be spread forth, or, rather, trained, with as much precision as the branches; no two touching each other. A barrowful of very mellow loam, and very old vegetable soil, should be at hand, well mixed; and handfuls of this will serve to bed the roots in their positions. After some more of this is scattered over the roots, the ordinary soil may be filled in; and it will be well to have some half-rotten manure, or leaf-soil, to blend with this in the act of filling, in order to induce fibrous surface roots.

SELECT PEACHES.—We now proceed to give a list of peaches, with their characteristics and order of ripening. Some of these have several names, which are what botanists call synonymes (meaning the same). As localities differ as to the explanation of these names, we deem it expedient to give two or three of the principal names by which they are known in general. They will be placed, as nearly as possible, in the order of their ripening, and we shall select only such as may be considered truly good and useful kinds.

1. *Early Anne*.—Beginning of August. A middle-sized fruit, rather pale in colour. Flesh melting, and the fruit tolerably well flavoured. This will not prove a very profitable peach, and we merely place it at the head as being the most eligible for those who can find space, and are determined to have a *very* early peach.
2. *Acton Scott*.—End of August. A middle-sized fruit, of a palish colour; flesh melting. This is a very good early peach.
3. *Pourprée Hâtive* (Purple Early).—End of August. A large fine fruit, generally rather high coloured; flesh melting. A truly good early fruit.
4. *Malta*, also called the Italian, or *Peche de Malte*.—End of August. A respectable fruit of a palish red; full-sized, and melting. This fruit is known to keep better than many others after it is gathered, and to bear carriage well.
5. *Grosse Mignonne*.—This peach has two or three score of names, the following are a few of the synonymes:—Grimwood's Royal George, French Mignonne, Ronald's Galande, Large French Mignonne, and Padley's Purple. This is a noble fruit, of a rich yellow and red, and thoroughly melting;

ripe end of August. Not liable to the mildew, and forces well.

6. *Royal George*, called also Red Magdalen, Millet's Mignonne, and Double Swalsh.—Beginning of September. Excelled by none. We think this better adapted for northern climates than any peach with which we are acquainted. Full-sized, of a fine rich colour, and melting. A capital forcer.
7. *Noblesse*, called also Vanguard.—Beginning of September. A magnificent fruit, of a pale greenish ground, speckled, next the sun, with deep crimson dots; flesh melting. Capital for forcing.
8. *Bellegarde*, called also Galande, Brentford Mignonne, French Royal George, &c. Middle of September. A splendid fruit, very large, melting; of a fine creamy ground, with a gorgeous tinted cheek towards the sun. Keeps well after gathering. Good forcer.
9. *Late Admirable*, called also Royal, Pêche Royale, Bourdine, &c. End of September. A fine, late peach, perhaps our very best to finish the season with. Melting, very large, and of a good colour.
10. *Walberton Admirable*.—We are unacquainted with this kind, which is a novelty. It bears a very high character, however, in reputable quarters. End of September, or beginning of October. A large peach, and melting.

We think it needless to add any more; for these, cultivated in a first-rate manner, will be found, as a series, to equal anything in the kingdom, in the peach way. We will now add a sort of analysis of their characters.

For a *forcing-house*, where only one is required, we would plant No. 6; if two are wanted, then take Nos. 6 and 8; and if three are requisite, then Nos. 6, 8, and 9.

For a *small garden*, where only one is required, take No. 6; if two, then take Nos. 6 and 8; if three, then take Nos. 2, 6, and 8; if four, then take Nos. 2, 6, 8, and 9; and if five, then take Nos. 1, 2, 6, 8, and 9. If a greater number is requisite, it would be well to have two of No. 6, as being a sure bearer, and hardy. In this case it would be well to give the Walberton Admirable a fair trial.

Let us, in concluding the peach subject for the present, endeavour to impress on the minds of the readers of THE COTTAGE GARDENER, the absolute necessity of attending well to the preparation of the soil, and the selection of the trees in the nursery. With regard to the latter, the tree, or trees, should be selected during the end of September, before the walls have been picked over. A dwarf-trained tree will cost no more than is charged for the "dregs" in the following February, and the tree will be worth treble the value.

As to soil, never plant a peach in the same soil from which an old one has been removed. Adhere to our maxims on Stations, so fully described in our number for November 30th; taking care to let the chief component in the soil be a sound and fat loam.

We shall frequently recur to the treatment of peaches during the spring, making our remarks apply, as much as possible, to the season, so as to render it unnecessary to apply to any other source for calendrical business. During an experience of some thirty years, we have always found the proper culture of the peach to be the most difficult of problems with the amateur. No tree is more impatient of bad usage than our present subject.

GOOSEBERRY AND CURRANT PRUNING.—We would now advise the cottager to see that every gooseberry and currant-bush is pruned forthwith.

Those who defer this operation until spring, little imagine what a loss of strength is occasioned; and in many cases, where the bushes are weak, this can be ill spared. We should not hesitate to say, that the loss of power, consequent on spring pruning, as compared with the same process performed in November, amounts to nearly twenty per cent.; and this is at the expense of both the future wood and fruit.

It ought to be more generally known, that the stem absorbs, or sucks up, sap all the winter, less or more; or why should the wood of a deciduous tree shrivel, if removed and kept long out of the soil? Where pruning is behind, and time presses, the *gooseberries* should be done first; next the *black currants*, and then the *raspberries*; then the *cherries*, or the *apricots*. Next come *plums* and *pears*, and, finally, the *apples*.

PLANTING.—Let all planting be completed immediately; paying every attention to the station-advice given on November 30th.

MULCHING.—Every newly-planted fruit-tree, of any importance, should receive a coating of half-rotten manure over its roots as soon as planted. This acts as a regulator; it neither permits injurious effects from excessively low temperature, nor sudden droughts from the summer's sun; consequently, the soil is preserved in a more regular state. Indeed, we apprehend that the time will come when even established trees of value, in a fruit-bearing state, will be annually mulched. It is necessary, before mulching, to form the surface into a hollow, in order to retain water, which may have to be applied in May or June. We have known many trees heavily watered, and yet but little benefited, for want of this precaution.

R. ERRINGTON.

THE FLOWER-GARDEN.

ROUTINE MANAGEMENT.—At this season of the year there is but little to mention under this head. Yet in fine weather, such as we have had lately, we must be up and doing, in order to lose no time as the spring approaches.

STAKING.—Let all newly-planted trees be well and properly secured from the spring winds. If any large trees have been removed and planted, three strong stakes should be placed in a triangular, sloping position, meeting at the top; so as, when tied, to be, as it were, embracing the tree. In this position, whichever way the wind blows, there will be a stake to resist its power, which, on a large-headed tree, is always great. Hence the necessity of having three stakes, to keep the tree firm and its roots quiet. For all moderate-sized trees, one stake will be sufficient if driven firmly into the ground. Trees and shrubs planted early in autumn—if staked then—will now require examining, and should either any of the stakes have blown loose, or the ties have become slack, let the stakes be fresh driven in and the ties renewed; always remembering to place some substance, such as a hay-band, between the stakes and the trees, to preserve the bark from being rubbed off or injured.

MORE ABOUT WALKS.—All walks that do not require renewing, should now be weeded, well swept, and frequently rolled, to make them firm, smooth, and even. After frost, the gravel is apt to stick to the roller: to prevent this, let the operator put on a waterproof overcoat, and, while a gentle shower is falling, take the roller, and draw it over the walk several times. The rain will wash the gravel off

the roller, and effectually prevent it sticking. Rolling, while the rain is falling, will crush in the larger pebbles, as the rain will soften the understratum, to allow that effect to take place. This crushing, rolling operation, if frequently performed, will also help to destroy or to prevent the growth of mosses—those sad disfigurers of gravel walks. The above remarks, of course, apply only to our amateur readers, who can afford to purchase a roller. No good garden, indeed, ought to be without one. Our cottage friends, perhaps, may have some kind neighbour that will lend them a roller occasionally, for their walks also. Should any pebbles be so large that the roller will not crush them in, take a rammer, such as the paviors use, only not quite so large, and, with this instrument, beat down these large stones to the level of the walk; then run the roller over the walk, and all will be even alike. We have frequently practised the rolling of gravel walks during a shower, and always found it to answer admirably in preventing the gravel adhering to the roller, and making it set firmly, and become an even, smooth walk.

TRENCHING OR DIGGING.—These operations may yet be performed in the flower-garden, where the beds are empty of flower-roots; that is, if our plan of having the beds filled with evergreens in pots has not been adopted. The plan to do this well and effectually is, to remove all the soil out of each bed, to the depth of 16 or 18 inches. If the soil be poor or exhausted, take it all away, and entirely renew the bed with fresh soil. Flowers mostly love a light and rather rich soil. The following compost will suit the generality of flowers, usually grown in masses of one variety, in each bed:—One half of turfy loam from a common, or old, hilly pasture (this should be at least 12 months laid up in a heap, and regularly turned over once a month, for that time, before using); sandy peat, one quarter; very much decayed cow-dung and leaves, one quarter; with as much river sand as will give the whole a sandy texture. To make this perfectly plain, we will describe the compost as consisting of two barrow-loads of loam, one barrow-load of sandy peat, half a barrow-load of cow-dung, and the same quantity of rotten leaves, with the requisite quantity of sand—perhaps a bushel of sand, to the above quantities, would be enough, or less would do if the loam and peat are naturally sandy. At the bottom of each bed, put in the rougher parts of the compost, which may be picked out for that purpose. The old soil will be useful for vegetable crops, and may be wheeled at once into the kitchen-garden. When the soil of the beds is once thoroughly renewed, as above described, it will last several years, with the addition of a portion of dung, or rotten leaves, annually. The soil in the beds ought to be filled in so high as to allow for settling. When all the beds are filled, if they are on the lawn, let the edges be neatly cut with a sharp hedging-knife, and the turf that is cut off taken to the compost-yard to decay. It will make good loam for various potting purposes. The beds will now require no more attention till the time arrives to plant the flowers.

VIOLETS.—If the directions we gave in the autumn about forcing violets have been followed, those sweet, modest flowers, will now be rewarding the cultivator for his pleasant toil. Continue to cover up every night; and give air on all mild days. Keep a good look out for slugs, as they are very fond of making a meal of those favourite flowers. Let the flowers be gathered as soon as they are fully

blown. By doing this constantly, you will strengthen the coming blooms. Should several sunny days succeed each other, they will require water. Whenever you observe this, have some soft water, about as warm as new milk. Do not give them a mere dribbling only; but a right good soaking, that will thoroughly wet the soil, and go down to the roots effectually. This good watering will cause them to send up fine, large, well-coloured flowers. The operation will then not need to be so often repeated; for when too often done, there is danger of damping off the flowers. Watering should now be always done early in the morning, and on fine, warm days. It may happen that the green fly (*aphis*) will make its appearance. As soon as you see them, even in small numbers, procure some tobacco, or tobacco paper, and fill the frame or pit with its smoke. Do this carefully, or you may scorch the leaves. Never allow the tobacco to blaze, if you do your violets will suffer for it. It is easily prevented by damping the tobacco, just enough to prevent that effect. The red spider is also very fond of violet leaves, and, if allowed to go ahead, will almost destroy them—at least, prevent them from flowering satisfactorily. This is a far more formidable enemy to contend with than the green fly, and ten times more destructive. It is also more difficult either to prevent or to get rid of. Yet it must be destroyed, or your crop of violet-flowers will be very meagre. But, our young gardeners—whether amateur or cottager—may exclaim, “how shall we know this terrible foe?”* He is, we assure you, a very little one—hardly visible to the naked eye, but his ravages will soon make you aware of his presence. He feeds, generally, on the under-side of the leaf, sucking out the juices. The upper-side of the leaf will then lose its healthy green colour, and become of a pale brown. Whenever you perceive any of the leaves in this state, you may be sure the enemy is abroad: instant measures must be taken to arrest his progress. First, try a severe syringing, with tepid water, some fine morning; shutting up the frame, or pit, for the whole day. If the sun shines, shade with thin mats, till the sun loses his power to do mischief; and, in the evening, cover up closely again. This insect increases rapidly in a dry-heat, but moisture is fatal to it, if well followed up. Too much wet is, however, almost as injurious as the red spider: so, if one or two severe syringings will not destroy this pest, some other means must be tried to finish him. Take some soap water and sulphur, as recommended for the same purpose for the polyanthus at page 25, and apply it in the same manner. This is a rather tedious operation, but it will be found effectual.

FORCING ROSES.—The first lot will now be showing flowers, and should be attended to closely, with moderate waterings. At every third application of water, mix a small portion of guano in the water, or some manure water made with cow-dung; both excellent fertilizers for the rose forced in pots. Should any worm-casts appear on the surface of the earth in the pots, apply clear lime-water. This will destroy, without injuring the plants. The green fly will also make its appearance, and may be easily destroyed by the same means as that mentioned above for violets. The red spider is also fond of rose leaves: use the syringe freely to keep him within bounds. Look also for maggots in the buds, and crush them with the fingers. All these enemies require constant watchfulness, to keep them from destroying what all your pains are put forth to obtain, healthy plants and full

* A drawing of the red spider will be found at p. 63.

handsome flowers. Some more pots of roses ought now to be taken in, to insure a succession of blooms. Place them at first at the coolest end of the house or pit, giving but little water for the first fortnight. The roots will, by that time, have begun to put out rootlets (young roots), and will be able now to take up nourishment for the springing buds. You may then give water more freely. The heat for forcing roses should be 55° by day and 50° by night. With sun heat, it may be allowed to rise to 60°, provided there is plenty of air at the same time. Any higher temperature would cause them to draw up weakly, and the flower buds to drop off.

FORCING THE LILY* OF THE VALLEY.—Of all the lovely treasures that Flora produces to regale our senses and delight our minds, there are none that can boast of more elegant attractions than the modest lily of the valley. It has the advantage, also, that it loses none of its beauty or fragrance by forcing. Indeed, the leaves are, if possible, more beautiful now than in the open air and full light of summer. Beautiful as it is at all times, we hail its appearance at this early season more especially, as flowers are now so scarce. If the directions we gave at p. 23 have been in operation, the plants that were then set to work will now be in flower, or nearly so. As of the roses, so of the lily of the valley, a fresh lot may now be taken in to force, and those that are in flower may be taken out of the frame and put in the window. Those that are so placed will require an extra quantity of water for a time, as the window is a far drier situation than the frame.

ANNUALS.—A gentle hot-bed for raising annuals may now be made, either wholly of stable dung, well prepared by being thrown together on a heap, watered if dry, and frequently turned over; or a mixture of leaves, collected in the autumn, mixed with it. Beech or oak leaves last the longest in heat. If those two materials are mixed together, the heat will be more durable, and less fierce than the dung by itself. If you have a spare frame, let it be placed upon the bed, with the glass on it, to prevent the rain or snow from cooling it too much. Let off the rank steam, by tilting up the lights at the back. If you have not a frame at liberty, cover the bed with hoops and mats for the same purpose, till the heat is moderated, and the frame is at liberty. This bed will be three weeks or a month before it is fit for sowing your seed in it. Should you possess a pit, you may either use dung, leaves, or spent tanners' bark. Tanners' bark is longer in coming to a full heat, but it has the advantage of lasting longer. Our cottage friends may put into their turf pit, which we hope some of them have formed, some of the leaves collected in the autumn, and they will give a gentle heat, either for forcing flowers, or raising annuals, or mustard and cress, and other useful things.

FLORISTS' FLOWERS.

THE time for planting *Ranunculuses* is fast approaching. No time should be lost in procuring what roots you may require. Let the beds be protected from heavy rains and snow, and the surface stirred occasionally, to let in the air and prevent its becoming sodden and unmanageable.

We have filled up our space with other matter, and must defer the rest of our florists' flowers, under this head, till next week.

T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

MIGNONETTE, STOCKS, SWEET PEAS, &c.—About the beginning of February, the London nurserymen, as well as those of other large cities, begin to sow and prepare immense quantities of these articles, for flowering early in May in the windows and balconies of the houses of the rich inhabitants. In London alone, in the early part of summer, you may see miles of neat green painted boxes, about nine inches wide, six inches deep, and of all lengths, filled with stocks and mignonette; also some of other shapes and sizes, to suit every conceivable situation, about the doors, windows, and even the roofs of the houses of the Londoners. These green boxes are filled with plants that have been reared in pots till they are just on the eve of opening their flowers, the pots being more manageable to move about while the plants are growing than boxes; besides, if the seeds were sown in the boxes in the first instance, the damp pits in which the plants are grown would soon render the boxes useless by rotting them with so much wet. There is no great difficulty about all this; and anybody with a good window, a few pennyworth of seeds, and some small pots, say four-inch and six-inch sizes, may so manage as to get up plants sufficient to fill a nice sized box to fit the outside ledge of a window, or any similar situation.

MIGNONETTE should be sown in six-inch pots, in a rich soil, and well drained, the seeds covered one-fourth of an inch, and about 20 seeds in that sized pot, as some of them may not grow, and others may chance to die after they are up, but then, after making a full allowance for all failures, there will be plenty to fill the pot and some to spare. The plants must, therefore, be thinned as soon as they begin to crowd each other, seven or eight plants will be enough to leave for flowering, and half that number would be enough if they were to be flowered in the pot; but they are to be planted out in the box as soon as the flower buds appear, with the ball undisturbed, and the top of it placed half an inch deep below the surface of the soil in the box.

Stocks (of which the scarlet ten-week, or intermediate, is the best,) are to be raised after the same manner, but in four-inch pots, and three or four plants will be sufficient for one pot. When the plants are six inches high, they will be ready to shift into the box in alternate rows with the mignonette pots, and then the whole to have a good watering to settle the mould about the balls. Of course there will be a row of holes in the bottom of the boxes to let off the water. When the seeds are sown the pots may stand in the window: or, if the kitchen window is warmer, they may be set there till the seedlings are well up above the soil. If they do not come up weak and spindly, the place is not too hot for them, but they will require to be very near the glass, and to be gently watered as often as the surface soil becomes dry; but very little will serve them at a time till they get up stout little plants. Any window on which the sun shines most part of the day, and where a fire is kept, will do to rear these little fellows capitably; and as they advance in strength, turn them outside for a few hours on fine sunny days; or, if frost prevails, keep them drier, and let them stand down in the room at night, for fear of the frost nipping them through the glass. Now this is really a nice experiment to try; and, if you should not succeed at first, the loss will be a mere nothing, and depend upon it you will learn

more about them in one month than you can learn from books in a twelvemonth. There is nothing like going at the thing in earnest, and doing the work with your own hands; that is the right way to find out all the little secrets, and if you persevere I shall tell you of many such experiments this spring, and by this time next year, perhaps, you will put your neighbours in a better way of doing these things, from your own experience. Only think of that.

SWEET PEAS.—These also are extensively sown in pots about this time, to flower early in May, and perhaps this plant is the safest thing for one to begin with for the first time. Sow in a circle round the sides of large pots, say those eight or nine inches in diameter; and, as soon as the seedlings appear, allow them plenty of air, and merely guard them from frost and cold, cutting winds, giving them water whenever the soil appears dry. When the plants are five or six inches high, put a few twigs in the pots for them to cling to; and when they reach a foot in height give them taller sticks, and large doses of water, as they are now strong feeders. A sheltered place out of doors, where the sun will get at them most part of the day, would be a suitable place for them after they are six inches high, and either to have some protection at night or to be taken in doors.

CALCEOLARIA SEED.—If you should make up your mind to have a trial at growing these beautiful plants, and would be content to raise plants for yourself, this is a good time to sow the seeds, and by good management the plants would blossom next autumn. The best time, however, to sow calceolaria seed is in August; but, unless one has had a little experience in keeping plants over the winter, these are too delicate to begin with. The only drawback to February-sown seedlings is, that our summers are too hot for this family; and unless the pots are kept cool, either by double-potting, or by being enveloped in damp moss in a shaded situation, the plants often become a prey for the red spider, an almost invisible little insect, which is a sad pest to gardeners when once they get a good footing, and of which a drawing was given at p. 63. The seeds of calceolarias are so small as dust; therefore, I shall give a very full detail of the whole process of sowing and rearing the plants, and the same rules will be applicable to many other kinds of small seeds.

Some people have a notion that seeds ought to be sown in the very kind of compost that will grow the plants best when they are full grown. The reasoning on this point is natural enough; but in practice it is found that all seeds that will sprout in a few weeks, will do so just as well in a poor sandy compost, as in the best prepared soil. This must have been understood in ancient times, otherwise our Saviour would not have referred to the subject in the parable of the sower. I have often raised calceolaria seedlings in pure sand; and I consider light sandy soil one half, and the other half sand, the very safest compost for young beginners to sow their seeds in; as, being so open and so poor, the plants will be less liable to accidents from over-watering or damp. Four-inch pots are of the best size to sow the seeds in, and these should be half filled with cinder ashes, then this light compost for the other half, but not filling the pots quite full, for we must leave a little room for watering. Make the soil smooth on the top, or if an inch of the top soil were sifted finely it would be all the better. Then take a fine-rose watering-pot, and give the soil a good watering, to wet it through. Recollect this is before sowing the seeds, for they are so small that they can hardly be covered

with soil, and such a watering as is necessary to wet all the soil would be apt to wash them out. Therefore, for very small seeds, we always water the pots first, and as soon as the water passes off through this large mass of drainage, the seeds are thinly sown with the forefinger and thumb, taking a small pinch at a time, and passing it off as you would salt upon a sandwich at a pic-nic party; and when the seeds are in, take another pinch of the dry soil or compost and sow it exactly in the same way, till you see the seeds are just bedded in the soil, and no more. The pots are then put into a good window, with a piece of card, or something of that sort, placed over the mouth of the pot to keep the moisture from drying off out of the damp soil; and when you see the surface of the soil getting dry, you must give a gentle sprinkling of water, but you must do it as carefully as if your very existence depended on your caution, for fear of disturbing a single seed out of its place. In ten days or a fortnight you will see the seeds sprout, and then the card must be removed, to let in the air to them. Now, at this early stage, a good window in a room where a fire is kept is the place for them, much better than a greenhouse, as the dry atmosphere of a room will prevent any damp—the great enemy of all young seedlings. They are not very particular about being always in the same temperature; what happens to be the heat of the room will do, provided neither the frost is let to them at night, nor any cold currents of air. Although it is always advisable to be careful in the rearing of young seedlings of any sort, there is no more difficulty about the matter than in raising a pot of mustard or cress. As to how often a pot of seedlings, or indeed any pot, ought to be watered, all the philosophy in the world cannot determine without being on the spot. Therefore, when I state such a time, or so many days, it is all mere guess. In dull weather, three or four days may pass, and no watering will be needed; and in hot, sunny weather, seed pots often require to be watered twice a day. The only rule for seedlings, is to have the surface damped gently as often as it gets dry, and that such water be always lukewarm when applied, even for the calceolaria; whose watering, in a state of nature, is often from the melting snow, as we stated last week.

CINERARIAS, to flower next autumn, should be sown early in February, and treated exactly as above directed for the calceolarias, only they may have a little more covering of soil.

I think any seedsman in the three kingdoms can supply little sixpenny packets of those two tribes; as, if they happen not to have any of their own saving, they can procure them from London or other large places. Orders for things of this nature ought to be given in time, however, as it will never pay to send for small parcels on purpose. They must come along with plants and other things. Very fine and new varieties will be much dearer than stated above; but it is only such as have gone through the process already, that will risk a good price, till they see how the experiments will turn out.

When the little seedlings are big enough to be handled—or, say, when they have four leaves each—they must be transplanted into small pots; large pots hold too much soil for seedlings that are at all delicate in growth; four-inch pots are the best for the first potting of calceolarias, and half a dozen little plants may be put into each, for nursing; and, in another month or five weeks, according to the weather, these will require a four-inch pot each. The soil for all this nursing must be of a light nature; but after that they will take richer soil, and one not quite so light.

Gardeners make use of very rich composts for growing calceolarias, but until you get well accustomed to manage them, such rich composts are dangerous. A correspondent at Manchester says, "last October, I got some horse's dung, leaves, &c., and mixed them with some light soil, ready for my plants this spring."—A capital receipt, and this compost will be in good condition to grow the calceolarias and cinerarias after the nursing is over; and, with equal parts of sand, will do for the seeds and for the nursing pots. A boy, for a few pence, will gather a barrowful of horse-dung for such a compost on almost any road or street, and a little dry road-scrappings is excellent to mix with such a compost; and when that is quite rotten, one-third of it added to two-thirds of any good mould, and a little sprinkling of sand, will grow ninety-nine out of a hundred of all the pot plants in the kingdom.

BALSAMS, COCKSCOMBS, and a host of other tender annuals will be time enough if sown early in March.

POTS.—If you use new pots for any kinds of seeds, they ought first to be steeped in water for a few hours, as they will be too dry otherwise, and will suck away the moisture from the seeds, and nothing is worse for them than to be too often watered. All your old empty pots ought also to be steeped and well washed, to be ready for use. There must be no idle pots lying about by-and-by. If you have any *wallflowers* in the garden, a couple of them removed into pots now, and kept in a shady place for a few days, would come into flower a long time before those left out of doors, if you can spare room for them in a pit or greenhouse. I find moss by far the best thing to grow the *hyacinths*, and some might even now be taken out of a bed and put in pots of moss.

D. BEATON.

THE KITCHEN-GARDEN.

IN every art, and in every science, he is the most praiseworthy practitioner who can effect his purpose with the simplest apparatus, the commonest tools, and, consequently, at the smallest expense. We are led to this remark, from having lately been walking round the forcing ground in the garden of the Warden of Winchester College, which is under the care of Mr. Weaver. He is one of the best practical gardeners alive, a good naturalist as well, and carries off some of the best prizes, every year, at the shows of the Hampshire Horticultural Society. Amongst other excellencies, he is a very superior chrysanthemum grower; and this leads us to illustrate the sentence with which we commenced. Upon looking over the sea-kale forcing, by him, under a hot-bed made of leaves, we found that the twelve-inch pots, in which Mr. Weaver blooms his chrysanthemums, are employed by him in this operation, and his observation upon it is worthy of every gardener's remembrance:—"This keeps the flower-pots from being idle; and I can get sea-kale a fortnight forwarder under them than I can under sea-kale pots; they are smaller, and can be kept warmer."

PREPARING THE SOIL.—Embrace every favourable opportunity for bringing the soil into a healthy, pulverized condition, for all spring crops; for this interesting, busy season, is now fast approaching; and as success in obtaining an abundant return from the soil so much depends on a good preparation, and the frequent surface-stirrings afterwards among the growing crops, it is well often to remind our cottage friends of this important matter. It is not hurrying

the seed, or the plants, into the soil on "our village fair-day," or on any other appointed day, because it has arrived, whether the soil is in a fit condition or not, or whether the weather is suitable or not; but, on the contrary, the chief point of good culture, and for securing an abundant return from the soil, is first to drain, and then to trench it well; to perform surface-stirrings, and hoeings, in favourable weather, and as often as possible. All these pains and labours will be well repaid by a bountiful, healthy crop in return. Sowing and planting should always be performed, too, in favourable weather, and not till a good preparation is secured.

A sowing in drills, of *parsley* and *spinach*, should now be made; a little charred refuse sown with it will be found beneficial. Spinach, in drills, may be advantageously sown now, and at all times, between every two rows of peas. The ground is thus economized, and the shade from the peas continues the spinach longer in a state fit for table use. *Peas* and *beans*, already up, should be occasionally surface-stirred, and protected by shaking amongst them dry dust; and those intended to be protected by sticks and boughs should be so protected at once.

FRAMES.—*Early cucumbers* and *melons*.—Maintain as regular a surface heat as possible, by well topping up the linings, keeping the inside soil and inner side of the frames or pits moist, by sprinkling them in the afternoon, at shutting up time, with tepid water. This is the means of maintaining a kindly moistness, preventing the occurrence of red spider, thrips, and woodlice. Those who have a little fermenting materials to spare, by making slight hot-beds, protected with refuse, and hooped over to support the protection of a mat, could forward a few early *turnips*, sowed in drills. Also *asparagus* may in this way be forwarded, and produced very fine and abundant. *Potatoes*, *radishes*, and *carrots*, may still be obtained earlier, by planting and sowing on slight hot-beds; and with more certainty of obtaining a healthy, abundant crop, than in the open ground, if protected with mats, &c. Those already up, and growing, should be kept well thinned, surface-stirred, and assisted by waterings of tepid water. When the seedlings are strong enough, a little liquid manure should be added, thus encouraging a healthy, luxuriant growth, and by shutting up tolerably early of an afternoon. *Potatoes* already grown high enough in frames or pits, should have a little light earth placed amongst them, to keep the surface tubers from greening. Collect together every available article that can at all be turned to account as a fermenting material, and keep it snug together, turned and sweetened ready for use.

G. W. J. & JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 16.)

ALTHOUGH February is, in general, wintry and cold, it is decidedly a spring month. The days are delightfully lengthening; every morning we hear a new and joyous note, when we open our window; and when the sun does find time and opportunity to shine brightly upon the earth, his beams are warmer and softer than during the frosty days of winter. There is a stir, too, among the things of earth,—a busy movement in nature, that speaks of approaching revival; and every sound of spring is so distinct from

that of other seasons, that were we to bring from a long imprisonment one who knew not what season of the year he left his cell, and were to bring him forth blindfolded, he would at once exclaim, "It is the spring." There is a whispering in the woods, a rustling on the ground, sounds both above and below, that can never be mistaken; the perpetual harmony of birds, the lowing and bleating from the springing pasture land, reminding us so loudly of the pastoral habits of God's ancient people, and the beautiful and interesting scenes described in the sacred pages of the first great history. The very gales of spring have a different tone to those of autumn; there is a loftiness and grandeur in them, a peculiar sound in the topmost boughs, and, at the same time, a buoyancy and spirit, if I may so speak, that I have never remarked at any other season. All these pleasing harbingers of brighter days are now stealing upon us, and drawing us continually to the open window, the garden, and the fields. I have already rejoiced at the sight of one half-blown snowdrop, and one little bright twinkling hepatica—a sight really exhilarating to any one who loves the garden, and longs to be busy among the borders once more. The sharp green points of my crocuses are rising here and there; the gentianellas seem actively employed, and look green and promising; and the honeysuckles are covering themselves with delicate springs, and the old lingering leaves have all disappeared. I am, however, sensible of some drawbacks to perfect felicity. The hares and rabbits have eaten down one flourishing climbing rose, to which I had been looking forward with some interest, having placed it in a new and striking position, and intending it to cover a pole. That hope is extinguished for the present, as are several pinks and other plants which I hoped the mild winter would protect from hungry animals. I mention these disagreeables because it may reconcile some other sufferer to her lot, when she knows her case is not one of singular annoyance. The best way to protect borders from such destruction, is to fix rows of tar-twine round them, by means of sticks, like miniature posts and rails. Hares and rabbits are said to dislike the smell, and will not jump over the little fence; but I do not speak from observation, for I have never tried the experiment. This is the first season my roses have been attacked, and I was not, till now, aware that they were in any danger.

Although there is still much wet in the ground, and some soil can scarcely be touched with the rake or trowel, yet in early situations and light soil, the borders should now be put in order, and prepared for seeds. Weeds begin soon to appear, much sooner than the flowers: the garden, as well as the human heart, proclaims that bitter fact. Whenever the soil is stirred,—whenever a border is formed,—whenever a garden operation is effected, up comes a weed. Flowers must be placed there, but weeds spring up unbidden. Let us, while we prepare the ground—while we remove the weeds—while we plant and sow those future beauties of the soil—remember, that were it not for that one gracious Hand that nurtures us, that sends light and sunshine upon our worldly path, that roots up the evil and sows the good seed within, we should be left in hopeless, unfruitful sterility. Let us reflect, too, with bitter shame, that while our trees and plants reward us for our care,—while our flower-beds please the eye by their neat and cultivated appearance, and our shrubs look green, and bright, and healthy—our hearts and lives make a far different return to Him who trains us

with a Father's hand, watches over us with a Father's love, and has opened "a Fountain for sin and uncleaness," more purifying and enriching than all the showers that water the earth. Well may those deeply-affecting words be spoken to us, "What could have been done more to my vineyard that I have not done in it?" Surely, as we labour and busy ourselves about our flowers, we might learn a deep and important lesson ourselves, the blessing of which might extend even beyond the grave.

Suckers and layers may now be removed from the parent plant, in soft, open weather. Thrift may be planted for edgings, and an extremely pretty edging it is: it gives a bright rich glow to the garden, lasts a long time in flower, and makes up considerably in effect, should any flower-bed be without bloom for a time. I have seen it interspersed with flint-stones, and, for a cottage garden, I like the idea; but I do not think it would so well suit that of a lady. Box has been called "the worst of all edging," but I confess I think it neat, pretty, and sweet, if kept in close and perfect order. Turf may be laid down now: it should be laid very even, and well beaten down. The best thing for turf is constant treading. Wild, rank, weedy grass, by being continually trodden upon, will become a fine lawn. Pressure destroys weeds, but it benefits the grass; never mind, therefore, how much your lawn is trampled upon, in wet weather especially; roll it, to keep it even, and it will look more beautiful than ever. Moss ought never to be encouraged, strictly speaking, but I much admire it. A soft mossy lawn is agreeable to my taste, but a gardener would condemn it. Frequent rolling destroys it, and it arises sometimes from not being rolled at all. Ladies cannot always command the use of a labourer, to roll their lawns, in which case they will unavoidably become mossy; but frequent treading will do much to prevent it. Moss is a very pretty ornament for dishes of winter fruit; it looks warmer and less formal than the laurel leaf, and enables you to place the fruit more conveniently in the dish. Lawns should never be allowed to remain long without mowing; or the grass will grow strong and coarse, and look yellow and frightful when the scythe has passed over it. Every fortnight, at least, this should be done, and oftener if possible, except in very dry weather, or where the soil is apt to scorch and injure the grass. A lady will soon make her own observations, and direct it accordingly. There is always something to do, and to watch, and about which to interest ourselves, when once we have formed an attachment to that delightful object—a garden.

SCRAPS FROM CORRESPONDENTS.

HEDES ON YELLOW CLAY.—The crab will succeed better than the white-thorn, and make an impenetrable fence. Hornbeam will also make an excellent hedge on such a soil. On a yellow clay, especially if moist and of the plastic clay formation, cuttings, either of the common bramble or of *Rubus Corylifolius* (Hazel-leaved bramble), will make a dense and unassailable hedge in two years; the latter is the preferable sort for its fruit, which makes an exquisite preserve.—*Hantoniensis*.

CYCLAMEN—SOW-BREAD.—Whether this name be sufficiently distinctive or not, we believe the fault lies not with English botanists, but that the name is translated literally from the German. The plant is cultivated in Hungary as food for animals—we

believe swine; see Dr. Bright's "Travels in Hungary." Mangold-wurtzel is a name still less descriptive than sow-bread.—W. P. T.

TO CORRESPONDENTS.

HEATING A SMALL GREENHOUSE (T. F. M. Otley).—You have a viney 17 feet long by 11 feet wide, with a pit in the middle, which you propose heating by means of three-inch piping, connected with a boiler at the back of your kitchen fire; and you wish to know if these pipes will heat both the pit and the house. You also mention some cases of failure, where the pipes were considerably below the boiler bottom. In reply, we have to observe, that the best, the simplest, and the cheapest way of heating a small greenhouse is by a common fire, as we have already stated. It is always dangerous to place hot-water pipes lower than the bottom of the boiler, as then the circulation often ceases in the lowest part; two of your pipes, a flow and return, will be amply sufficient for your pit in the viney, and these ought to have stop-valves to cut off the circulation when the bottom heat is high enough; the other two should be carried round the front to the farthest corner, and then return. Keep them a few inches from the stem of the vines. It will not at all answer to heat the house from the pipes under the pit. The pipes for bottom heat ought to be chambered, by cross pieces of rough wood, a few inches above them, on which lay the plunging material; but 3-inch slate would be the cheapest in the long run, with sand over to plunge in. It would cost from 35s to 40s to cover your pit with slate. Sand, kept moist, is the best material to plunge pots in over bottom heat.

SIGMA.—Many thanks for your friendly though cynical criticism. We all require stimulating occasionally.

BINDING THE COTTAGE GARDENER (G. E. L.).—We propose to give a full index and title page at the end of the year, leaving every subscriber to adopt what binding best suits his taste.

MANURE ROUND ROSES (Ibid).—Do not remove this until the end of March; we would, indeed, recommend our own practice, viz., not to take it away at all, but to point it in and cover it with earth when the beds are spring dressed.

MONTHLY PARTS (Eastoniensis and G. Langtry).—Thanks; we will endeavour to meet your wishes, and we think it will be generally acceptable, by printing, in future, on the cover of the Monthly Parts a Calendar of the work to be done in the Fruit, Flower, and Kitchen gardens during the next month.

KYANIZING (L. B.).—This certainly renders wood less liable to decay and the attacks of insects; but a cheaper and very effective mode of obtaining the same benefits, is to have the wood planed very smooth, brushed over with coal-tar at a boiling heat, and then painted.

GLAZING MELON FRAMES (Ibid).—Use the largest and best sheet glass. We are quite sure that where any injury has occurred from using sheet glass, it is because either the quality of the glass has been bad, or less attention has been paid to the ventilating, watering, and heating, than was necessary to keep pace with the vigour of the plants enjoying an increased degree of light. Panes 9 inches wide and 2 feet long would not be too large. In London the frames can be had for the price we quoted.

FILTERING WATER (J. P. Hawick).—We do not know the patent purifier you mention, but we do know, from having tasted it, that rain water passed through a filter like that described in THE COTTAGE GARDENER, p. 141, is pure and excellent. A cask, as there drawn, with a tap and a false bottom, bored full of holes, supporting the filtering materials, may be cheaply and easily made. The filtering materials should be:—1, a layer of pebbles; 2, a layer of sand; 3, a layer of powdered charcoal; 4, a layer of sand; and, on the top of this last layer of sand, a board pierced with holes, to prevent the sand being disturbed by pouring in water. At first the water will run through thick, but after using it constantly for two or three days the water will be pure and clear. Each layer should be 6 inches deep.

CALCEOLARIAS, &c. (An Amateur in Plants). The directions given in our last Number, in the "Greenhouse and Window" department, will give you all the information you require. On Cinearias and Balsams you will find in our columns full information in due time. Your compost of horse-dung, leaves, and light soil, made in October, will do very well if you mix it with one-fourth sand. See WINDOW GARDENING.

GLADIOLI (E. B.).—You ask about their after treatment, and whether they may be planted out in the spring. In reply,—water your Gladioli (Corn-flags) sparingly till the leaves are four or five inches long; after that, water freely every two or three days. If you drained the pots according to the directions for this tribe, you need not fear giving them a good dose every time, say a pint of water to a bulb-pot six inches wide, and what the soil will not hold must pass quickly through the bottom. If you give them plenty of air, and so bring them up hardy, they will do very well to plant out late in the spring, if you prefer that way. Plant them without the pots, and place the surface of the ball an inch below the ground, taking care not to break the ball. There is no advantage gained by plunging them in the pots. If the pots are six-inch ones, and only one bulb in a pot, you need not shift them; if otherwise, when the roots begin to coil round the ball is the proper time. It is best to put all flowering bulbs into their flowering-pots at once.

COLD PIT (Ibid).—The bottom of your intended pit, on "sandy and gravelly" soil, will not require any draining; it is the best possible bottom for a pit. Unless you wish for a fire, or hot-water pipes, to heat it, the "internal arrangements" will consist of levelling the bottom, placing two or three inches of rough coal-ashes over the bottom, and a little finer over that, to place the pots on. Then such plants as are very dwarf must be brought near the glass, by adding a quantity of fine coal-ashes at one end, and plunging the pots in it down to the rim. Any little plants will do well enough a foot from

the glass, and this way of plunging them is by far the best and easiest way of wintering them. Shelves, or stages, in such pits are expensive, last no time, and can only be well managed by experienced persons. Nevertheless, never hesitate a moment to ask for any little instructions that we can give.

HARDY SPRING FLOWERS (A Glasgow Lady).—There are hardly any new additions to our very early hardy spring flowering plants, and many of the older ones would not do in front of your library windows, where more fancy things must take their place in May, when little spring plants dislike to be removed, and if left in the beds would be smothered. Therefore, the most satisfactory way of keeping flower beds near the windows gay in early spring is by bulbs, such as the snow-drop, crocuses, snow-flake, hyacinth, early tulip, jonquil, and squill; also, for the middle of the beds, wallflowers of different hues, and as many tree violets as you can get,—but we shall give an article on the subject.

FATTENING CATTLE (O. S.).—It is a disputed point whether cattle are fattened most profitably upon Swedish turnips or upon mangold-wurtzel; we believe that the doubt arises from other circumstances than the actual nutritive composition of the two roots. One soil will bear a greater weight per acre of one than the other: the cattle may relish one more than the other; and the season may have been more propitious in the production of sugar in one root than in the other. We should recommend a combined feeding with the two roots, adding daily a little straw, bruised oats, and oil cake.

LAYING DOWN A MEADOW (M. W. C. Suffolk).—Instead of barley, as recommended by us, p. 196, you may sow oats, but your land being light, on a gravelly subsoil, would probably bear a better crop of the former. You need not root up the wheat already sown on the part you intend for a lawn, but may sow the grass seeds among it. The same seeds will do for your meadow.

SLIPS OF ROSES (Lady C. Wiltshire).—You may now put these into water, as mentioned at p. 173, by our fair contributor.

WHITEWASHING A WALL (A. N. A.).—This will probably improve the health of your plants by giving them more light. A red brick wall absorbs nearly all the rays of light which fall upon it, except the red, but when whitened it reflects them all. It is for this reason that the insides of greenhouses, frames, &c., are painted white.

BURNT OYSTER-SHELLS (Ibid).—All that we have said about the use of lime applies to these, for they form a very superior lime when burnt. Oyster-shells, before they are burnt, are composed of carbonate of lime (chalk) 98·3, phosphate of lime (bone earth) 1·2, and animal matter, 0·5. You cannot employ a more prolific bean than the Scarlet Runner for your trellis.

RASPBERRIES (A Constant Subscriber).—If in a single row, a space of two feet from plant to plant is quite room enough; and we recommend you so to plant them on the east, west, and north sides of your kitchen-garden beds. If you devote a separate quarter to them, plant them in rows three feet and a half apart, and two feet and a half from plant to plant.

SOOT AND SALT (T. Harton).—For your plot of ground, 20 yards long and 10 yards wide, which you are preparing for potatoes, half a bushel of salt and two bushels of soot will be a good dressing. Sow them over the surface, dig them in, and plant immediately you read this.

ALLOTMENT FARMING (Sylvia, Brixton).—We will reply to your inquiries fully in our Number which will be published on the 22nd instant.

POTATOES ON AN OLD MEADOW (W. X.).—Do not, if you wish for a good sound crop, put a single shovelful of guano, soot, or any other kind of manure, for an old meadow is always full of decomposing matters. All agree in deprecating the practice of manuring for potatoes. All that you need do is to plant forthwith, do not delay for a single moment, but follow the rules we have given in our editorial to-day.

BUDDING ROSES (Miss C. Robson).—Having some wood-cuts to be engraven, we must defer our answer until next week.

NAME OF PLANT (C. Planner).—The plant of which you have sent us a slip is, we think, *Diosma hirsuta*, but there being no flower we cannot speak positively. If a *Diosma*, it is of the Lineæ class and order Pentandria Monogynia. Cuttings of the young shoots planted in sand under a glass will root without any artificial heat. The crocus is of the class and order Triandria Monogynia.

SWEET PEAS (Highgate Hill).—Probably, Mr. Beaton, to-day, gives you the information you require.—In your poor heavy soil, it is no wonder you fail in your attempts to grow this sweet annual. Let your soil be finely broken; remove a circular space one foot across and six inches deep; put into this one inch of your rotted horse-dung, then replace some of the soil, leaving a hollow one inch deep. Sow your peas the last week in March in this hollow, and cover them with sifted coal-ashes, so that these rise half an inch above the surface. Do this to every patch of sweet peas, and you will succeed, provided you take care of them after they come up, by sticking them with small twigs first, and stronger ones as they grow. For *Jasminum nudiflorum*, price 2s. 6d., apply to Mr. Appleby, at Messrs. Henderson's, Pine-Apple-place, Edgeware-road.

SWEET LEMON (H. F. Saunders).—There are two lemons which are sweet and pleasant to eat. One of them, the common sweet lemon (*Limonier a fruit doux* of the French gardeners), may be obtained of any of the large fruit retailers in London, and very cheap. The other, *Citrus margarita*, the Pearl, or sweet China lemon, is not well known in this country.

AGAPANTHUS (W. H.).—Shall be answered in our next; and **TANKS (O. S.)** on the 22nd of this month.

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 15—21, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
15	Th.	Yellowhammer sings.	Cloth of gold Crocus.	16 a. 7	13 a. 5	1 13	☾	14 25	46
16	F.	Small bloody-nose beetle seen.	Pink double Primrose	14	15	2 12	23	14 21	47
17	S.	Dandelion flowers.	Susian Crocus.	12	17	3 8	24	14 17	48
18	SUN.	SHROVE SUNDAY Jackdaws build.	Wall Speedwell.	10	18	4 0	25	14 12	49
19	M.	Collop Monday. Spring Crocus flowers.	Field Speedwell.	8	20	4 47	26	14 6	50
20	Tu.	SHROVE TUES. Hort. & Linu. Soc. meetings.	Venus's Navel-wort.	6	22	5 29	27	14 0	51
21	W.	LENT BEGINS. ASH WED. Greenfinch sings.	White Crocus.	4	24	6 6	28	13 53	52

SHROVE is derived from the Saxon word shrive, or shrift, and means *confessed*; this being the time especially set apart for confession of sins by the Roman Catholic Church, preparatory to entering upon their severe fasting time of Lent.

COLLOP MONDAY is observed still in the north of England, collops, or slices of ham, or other salted meat with eggs, being the customary dish at dinner. It was the last day on which our ancestors indulged in eating flesh; and it is probable that they now eat up remnants (collops) of meat, to avoid having a large joint just at the beginning of the forty days of Lent. With this, *Egg Saturday*, celebrated two days before at Oxford, seems to correspond.

SHROVE TUESDAY, *Fasting Eve*, or *Pancake Tuesday*, the last day before Lent, though devoted to confession, was no less celebrated by feasting in old Catholic times. The bell which is still rung in some of our towns at ten o'clock, is no longer known as the Confessional but as the *Pancake bell*. There is strong reason for believing that eating pancakes on this day is a relique of the adaptation of papal customs to those of the heathen converts. The Roman Fornacalia, a festival celebrated in honour of Fornax, who presided over bread-making before ovens were invented, were celebrated on the 18th of February. We have no space for details of the games celebrated in various places upon this anniversary, but will conclude with some of our ancestors' sayings relative to its weather:—"Thunder on Shrove Tuesday foretelleth wind, store of fruit, and plenty;" "So much as the sun shineth on this day, the like will shine on every day in Lent."

ASH WEDNESDAY retains the name given to it by the priests of the Roman Catholic Church, who on this first day of Lent bless ashes and sprinkle them on the heads of their congregations. The term *Lent* has no reference to fasting, but is derived from the Saxon name for spring—*Lencteu-tide*—because the days then are lengthening, this being the spring fast. It is a Norfolk proverb, that "wherever the wind lies on Ash Wednesday it continues during all Lent."

PHENOMENA OF THE SEASON.—Some of the most striking occurrences of this month are the general symptoms of plants arising from their winter's torpor. The blossoming of some, the leafing of others, and the bud-swelling of a still greater number, announce on every side

that they are again awaking to life, and to reassume their beauty. Did you ever ask of yourself, or of others—What is vegetable life? If you have, you have discerned already that the answer is beset with difficulties. Some animals, as the zoophytes, are so little differing from plants, that it has defied the most acute philosophers to define where the animal kingdom terminates and the vegetable kingdom begins. The zoophyte is fixed to the soil, and has an organization differing little from that of plants; and when we know that if you tickle the leaves of the Venus's Fly-trap, they clasp their sides together; that if you similarly irritate the stamens of the common Berberry, that they rise spasmodically; and that the slightest touch makes the Sensitive plant close up its leaves;—who can say in what respect the life of these differs from life in the zoophyte? So long as life remains in any one of them they retain their form and loveliness; but life once departed, decay, with all its disgusting consequences, speedily arrives, and reduces them to the dust from whence they were created. It is vain to strive to detect this prevailing, controlling, preserving power; we can only obtain a veiled glimpse of it in its effects; under its influence all the functions of the roots, leaves, and flowers, proceed orderly and correctly; "no two operations clash; there is no discord, no irregularity, no disturbance; every object is gained, and everything is ready for its intended purpose;" yet "no person has been able to detect the *agent*, always so busy, and performing such wonders, nor to discover him at his work." We shall often recur to this subject and its wonders; we will, by degrees, place before our readers an outline of the phenomena of vegetable life, from the sprouting of the seed to the closing scene on the dunghill,—for the subject is full of instruction, and of illustrations of the power, wisdom, and goodness of God. A volume might be composed upon that single text—"Consider the lilies of the field, how they grow." So also thought Thomas Fairchild, gardener at Hoxton; and we dare say that many of our readers are not aware that next May 29th—and on every other Whit-Tuesday—a sermon is preached, in accordance with his will, at St. Leonard's, Shoreditch, "On the certainty of the resurrection of the dead, proved by the certain changes of the animal and vegetable parts of the creation." This excellent man died in 1729.

INSECT.—The Orange Upper-wing Moth (*Xanthopan cruceago*) varies from 1 to 1½ inch in the expanse of the fore-



wings, which are of an orange or yellowish red colour, with streaks and spottings of brown; the front margin

of the fore-wings marked with six distinct, white, nearly equi-distant spots; the portion of the wing bearing the spots is dark; the spots large, and alike in colour; a distinct, brown, oblique streak running from the hinder part of the outer spot to the inner margin of the wing; beyond the outer spot is a curved row of dark dots, and the side margin of the wing is dark-coloured, bearing an undulated, somewhat indistinct, sub-apical streak; the hind-wings are whitish, with a dusky spot and central streak often having a rosy tinge, but which is as often scarcely discernible. Varieties occur in the intensity of the ground colour of the fore-wings, and in the depth and extent of their markings. The caterpillar is yellowish, coloured with white dots, and angulated dark markings along the back, and oblique ones on the sides. It feeds on almost all the species of the oak. The moth appears to survive the winter, for it is found not only in June, but at the end of February and April. It is not a very rare species in oak woods in the south of England; and we have found it on the ornamental oaks in shrubberies.

	FEB.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
15	Cloudy.	Fine.	Frost.	Cloudy.	Frosty.	Fine.	Rain.	Showery.	
Highest & lowest temp.	49°—42°	54°—40°	29°—22°	49°—27°	45°—33°	50°—31°	54°—34°	49°—26°	
16	Cloudy.	Fine.	Frost.	Fine.	Fine.	Cloudy.	Cloudy.	Frosty.	
	51°—39°	53°—33°	32°—20°	49°—30°	41°—22°	48°—41°	51°—40°	44°—25°	
17	Cloudy.	Fine.	Frost.	Fine.	Fine.	Cloudy.	Cloudy.	Fine.	
	46°—36°	49°—25°	42°—30°	50°—36°	44°—23°	47°—39°	57°—47°	45°—29°	
18	Fine.	Frosty.	Snow.	Cloudy.	Cloudy.	Fine.	Cloudy.	Cloudy.	
	53°—38°	47°—24°	34°—31°	49°—39°	41°—21°	48°—39°	51°—41°	42°—25°	
19	Showery.	Cloudy.	Rain.	Showery.	Frosty.	Cloudy.	Fine.	Snow.	
	50°—35°	49°—30°	37°—34°	50°—29°	35°—16°	46°—39°	49°—32°	49°—32°	
20	Fine.	Cloudy.	Rain.	Frosty.	Frost.	Cloudy.	Fine.	Showery.	
	56°—40°	40°—31°	39°—35°	42°—20°	37°—22°	50°—40°	52°—41°	48°—25°	
21	Fine.	Rain.	Cloudy.	Showery.	Frost.	Fine.	Fine.	Cloudy.	
	56°—29°	48°—27°	54°—37°	42°—32°	44°—20°	58°—36°	51°—41°	46°—39°	

EXACTLY six hundred years ago, Albertus Magnus constructed a conservatory or structure, whereby he so prevented the escape of warmth from his plants, that he not only brought them to perfection earlier, but preserved them in beauty amid the severities of a German winter. For doing this, for effecting what every one of our readers may now effect for a

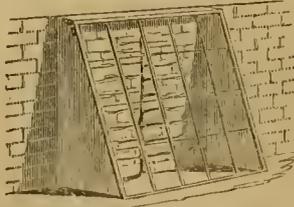
few pence, Albertus was, in those dark ages—dark because ignorant—designated a magician and a leaguer with evil spirits! Happily for us we live in days of better knowledge, and are in a fair way to become a nation of conjurers such as Albertus, for, in this day of cheap glass and better gardening, we have no doubt that, in a few years, every cottager

will have glass structures of some kind, and, as Mr. Rivers, the truly excellent nurseryman at Sawbridge-worth, said to us the other day, "Every cottager's wife will take in her basket to market a few peaches and nectarines." Nor will Hamburgh, and other high class grapes, nor pine apples, be unknown to those baskets in our southern counties.

This is no wild vision, for the cultivation of such plants is simple in the extreme; the system of dwarfing renders very small structures capable of holding many trees; glass is now extraordinarily cheap; and houses for the cultivation of fruit are, in our days, no longer the elaborate, expensive structures which they were formerly. We shall have to give some curious particulars upon all these points; but to-day we will confine ourselves to the cheapest forms of glass shelters, or what Mr. Maund, more than five years ago, very aptly termed "The Partial Protection System."

There is no magic in this, nor in any other system of fruit-tree protection, for it is all founded upon plain facts, which the boy who cannot understand is not fit to drive even a plough team. In our variable climate, when a bright sunny spring day is so often succeeded by frost and ice at night, it is necessary, to insure a crop of fruit from apricot, green-gage, peach, and nectarine trees, then in blossom upon our walls and trellises, that their flowers shall be protected from these frosts. This may be done by screens formed of the twigs of evergreens, nets, &c., but then these must be removed during the day, if warm and sunny, or the blossom will fall from the want of that heat and light combined, so essential for perfecting the pollen, and for securing impregnation, or "the setting of the fruit."

Now, a screen of good glass not only shelters by night, but increases the day temperature in which the trees are kept; and, as it admits the light also, it needs not to be removed at all, or, if removed, is taken away without danger of rubbing off the buds. We proposed such a screen as this in the *Gardener's Almanack* for 1847, and we gave the following sketch and brief commentary.



"With a hinge at each of the upper corners, the light may be opened whenever air is desired to be admitted; the angle at which the glass is placed allows the inlet of more rays of light than if it were perpendicular; and being in form very like a common garden-frame, it may be so employed at all other seasons of the year than the period between

February and the middle of May, when shelter to wall trees is no longer required."

Now, hinges are not at all necessary, the glazed sash alone need be employed; and, instead of by wood-work, the sides may be closed by means of furze, heath, or other leafy, bushy materials, tied in bundles. The sashes may be made and glazed for a sum so small as will surprise our readers when we enter into the detail next week.

Those who cannot afford an outlay even so trifling as is required for the preceding, may adopt a more partial system of protection, which was first published in the *Gardener's Almanack* for 1844, and was suggested by Mr. Maund. Any cottager may make a dozen or two of these shelters for half as many shillings, and, by their means, may protect and ripen early the fruit on as many branches of the vine, peach, apricot, or any other tree which he may have trained against his cottage or his paling. It is by no means necessary to cover the whole of a tree; half of it, one quarter of it, or only one of its branches may be thus protected, and will set and ripen its fruit a month earlier than that on the other parts unprotected.

Any one may make such protections of any pieces of rough board and pieces of glass, from the following description given by Mr. Maund. Elegance of appearance is not at all essential to its success.

"Grapes grown on open walls in the midland counties are rarely well ripened; therefore this year I provided a small glazed frame, a sort of narrow hand-glass, of the shape shown in the annexed outline, to fix against the wall, and inclose one branch of the vine with its fruit and foliage. The open part, which rests against the wall, is thirteen inches wide, and may be of any length required to take in the fruit. The sides are formed of single panes of glass, seven inches wide, and meet on a bar which may represent the ridge of a roof, the ends inclosed by triangular boards, and having a notch to admit the branch. This was fixed on the branch a month before the vine came into flower. The consequence was, the protected bunches flowered a week earlier than the exposed. The frame was not fitted closely to the wall, but in some places may have been a quarter of an inch from it. The lateral branches being shortened before it was fixed, it did not require removal, even for pruning, because I adopt the long rod mode of training, which is peculiarly adapted to my *partial protection system*. The temperature within the frame is always higher than without, sometimes at mid-day even from 20° to 30°. By this simple protection I find grapes may be ripened from three weeks to a month earlier than when wholly exposed, and this saving of time will, I believe, not only secure their ripening well every year in the midland counties, but also that such advantage will be available in the north of England, where grapes never ripen on the open walls. I should have told you that the cold nights of last spring caused almost all the young fruit to fall off during the flowering season, excepting where it was protected."



THE FLOWER-GARDEN.

DIGGING and TRENCHING.—Last week we endeavoured to give some plain directions about renewing the soil in flower-beds. Now, we very much fear there are a great number of villas and cottage gardens that have the ordinary flower-beds and borders not yet dug. What language can we use to persuade such persons from neglecting this necessary operation any longer? The benefit of digging or trenching in autumn, or in the open weather of winter, is, we assure our readers, very great. The exposure of the under stratum of earth to the air actually enriches it. The close texture of the soil is opened by the action of the weather, whether it be frosty or not; and the rain is thereby more freely filtered, as it were, through the smallest particles of the soil. Again, by loosening the soil in the operation of digging, the roots of the flowers and shrubs have a larger pasture allowed them to seek for nourishment. These advantages of stirring the earth of the flower-border with the spade are independently of enriching the borders either by the addition of fresh loam or dung. With the addition of these fertilizers, the advantages of stirring, opening, and pulverizing the soil with the spade are increased tenfold. Now, we would ask our readers that have hitherto neglected to dig their flower-borders, if it is wise to do so any longer? However small the flower-plot may be, the same beneficial results will follow in proportion. Even the small borders attached to our town villas should be frequently dug, and the shrubs and flowers will thrive better in consequence.

Is it necessary to describe how this common work should be done? It seems it is, for some of our correspondents say, that "we cannot contract our ideas to the narrow limits of the humble villa or cottage garden," and that "we write without thinking enough beforehand." Now, to these somewhat wholesale accusations, we cannot say "guilty"—for all our life, and that not a short one, it has been our constant study to diffuse the best information in our power, not only to the possessor of large gardens, but to the owner also of the smallest plot; and, with respect to thinking before we write, I ask, can any man write on such a varied subject as gardening without thinking, and deeply too? However; let all this pass, and let us return to our subject of digging. We suppose your borders, or border, are furnished with some flower-roots, roses, and shrubs—in fact, a mixed flower-garden. Procure a few stout pegs, and stick them in close to each patch of bulbs or roots, leaving about two inches visible above ground. Let all your rose bushes be pruned, edgings cut, shrubs against walls or paling trimmed and nailed, or tied; clear away all the rubbish, and then, if you have any fresh loam, rotten leaves, or dung, or all three mixed, lay on a moderate thickness all over the border of those refreshers. If you have none of those good things, do not therefore neglect the digging. Commence at one end of the border by opening a trench, that is, taking up with the spade a row of spadefuls across the border. Put this soil in a barrow, and wheel it to the other end of the border; then take up a spadeful of soil at one side, and turn it upside down, directly before you, in the trench you have opened. If your soil is heavy and strong, break it partially in pieces with the spade; if light, it will not need it. Proceed so with the next spadeful, and so on across the border, in as straight a line as you can, taking care not to injure or disturb the flower-roots, &c., that may be in the beds or borders.

Fill up the trench at the end with the soil that was placed there at the beginning.

If the beds or borders have not been dug for some time, and you are desirous of making a really good job of it, take up all the roots and shrubs, and lay them in by the heels: that is, cover the roots with earth in some vacant part of the garden; then lay on a good coat of fresh earth and dung; open a trench, as before, at one end, but instead of one spit deep of earth, take out two, and make a trench, half a yard wide, of two spades depth. Wheel this soil to the other end, and then turn the next spits of the next trench of the same width to the bottom of the first trench; then bring up the next spit to the top, and so proceed trench after trench till the whole is finished. After that, lay on another coat of compost and dig it lightly in. This is *trenching*, and will entirely renew your borders for several years. When all this is finished, the flower-roots and shrubs should be immediately replanted. If you have not compost enough to afford a covering to both top and bottom spit, omit the first coat, and apply one to the last turned-up spit, for this is most likely the poorer of the two; and, besides, the roots of the plants will sooner feel the benefit of the application.

THE COMPOST YARD.—Now is a good time to attend to this department. By this term, "compost-yard," we mean that place in the garden set apart to keep loam, peat, dung, and leaves in. To have all these implies a moderate sized garden. Perhaps the cottager in the country may find a corner in the lane, or waste, that may be near his cot, to keep his heap of collected leaves, gathered dung, and the dung from—what we hope he possesses—his pigsty. To such, then, as have *compost*, or heaps of any kind of fertilizers, our present writing is directed. The dung and leaves require the most frequently turning over, to prevent their heating too much. Should either appear dry, wet them thoroughly with water, or, what is better, with the drainage of the dunghill, the steps from the house, or, if there is such a thing near, the water from a stagnant pool or ditch. Every time this heap is turned, cover it up with a coating of earth: this will check the escape of the gases, which are the best part of the dung. If you can procure such a thing as a bushel or two of lime, it will materially assist the decomposition of the heap, and greatly increase its fitness for vegetable food. Strive to make this heap as large as you can: it is the riches of your garden. Without it, even with the best management, your flowers, as well as vegetables, will be poor and unsatisfactory; with it, liberally applied, they will be rich in colour, in scent, and flavour. Search, therefore, for materials to increase its bulk, as you would for gold in California. It is a more certain increase of your comfort and wealth than any of those wild chimerical schemes now too prevalent.

Reserve a portion, or small heap, of *dung* and of *leaves*, separate from each other, to be turned over frequently, until they become quite decayed, and fit for potting purposes. Attend to the heap of *turfy* loam also: expose every part to the air in succession. If you have a large heap of this valuable material—considerably more than is likely to be wanted for plants in pots—separate it into two heaps; and the one intended for use in potting, keep as it is; and the other, mix with lime. You will find its good qualities for gardening purposes much increased. *Peat earth* does not require turning so often as the above-mentioned. If it be turned three or four times a year, to keep down the weeds, it is quite sufficient.

That word, "*weeds*," reminds us of a piece of advice a very ancient friend gave to us with much gravity,—“Never allow a weed to seed, for one year's seeding gives seven years' weeding.” In the compost yard, or place where you keep your various soils, never allow a weed to be seen, much less to seed.

Keep a corner also for the *soot* out of your chimney, and another for broken *bones*. These last ought always to be mixed with earth, or they will—if even in so small a quantity as half a bushel—heat violently, and lose the greater part of their fertilizing properties. *Lime*, for dusting your borders or seed-beds, where slugs and worms are troublesome, or to make lime-water, should be kept in a dry place, in some vessel that is as near air-tight as possible: this will keep it quick and powdery, and preserve its pungency.

To preserve *sand* for striking cuttings, we have alluded to before. River or pit sand, to mix amongst composts or soils for out-door purposes, may be laid in any corner, stirring the surface occasionally, after heavy rains, to prevent the growth of moss, &c.

We have thus, at some length, dwelt upon the matters connected with the compost yard, because we feel satisfied of the importance of the subject, and are convinced our remarks will be of use to a great number of our readers. To such as may not have room, on account of the size of their premises, to keep dung and soils by them, we can only say we are sorry you cannot have the benefit of such useful, nay, indispensable materials. Of course you may, if you can afford it, always buy from a respectable nursery the soils you may want; but that you will find much more expensive than if you could have them by you in even small quantities, to be ready for use whenever your plants may require them.

FLORISTS' FLOWERS.

RANUNCULUS.—The season has now arrived for planting these very beautiful and elegant flowers. The soil of the bed ought to be in fine condition, neither wet nor dry. To prove its state, take up a handful, gently squeeze it, and let it fall about half a yard: if it is in a right condition, it will fall in pieces. Proceed then with a rake to level the soil; and having finished that operation, then, with a triangular-shaped and rather small hoe, or with the corner of a common hand-hoe, draw a drill across the bed two inches deep; draw the next five inches distant from the first, and so on till the whole bed is finished. Commence this some fine morning when there is a prospect of the day continuing fine. When the drills are all finished, sprinkle, at the bottom of each drill, some fine sand; then bring out your ranunculus roots, with a numbered label, made either of lead, with the number stamped upon it, or of wood, with each number written upon it with a black-lead pencil, upon a coating of white-lead. Begin then to plant the variety written in your book opposite No. 1: take each root between your finger and thumb, and place it at the bottom of the drill, very gently pressing it down in the sand to about half the length of the claws of each root. Having placed the first to your mind, put the next at four inches distance from it; and so proceed till you have planted all the first kind; then thrust in the numbered label, either with the number facing the kind, or with its back to it. Both ways are practised by florists, but we prefer the number to face the variety it belongs to. If our plan is followed, the number should be always put in first, the whole of the variety planted, and then

the second number put in, and the second kind planted. Follow on in this manner till the bed is filled. As soon as that is completed, cover the roots just over the crowns with some more of the fine sand: this sand prevents the roots from getting too wet or moulding. Having proceeded thus far successfully, take your rake again, and carefully level down the soil into the drills. If your bed is not edged with boards or slates (as recommended before), stretch a line on one side of the bed, about four inches from the roots, and with the back of the spade pat the soil on the side of the bed gently, to make it firm: then chop down the edge of the bed nearly perpendicularly, rake the walk neatly, and the operation of planting ranunculuses is finished.

AURICULAS AND POLYANTHUSES.—As the season advances, the days becoming longer, and the sun more powerful, so the cares, and toils, and pleasures, of the lover of flowers increases. The time to top-dress these charming flowers has arrived. Look in the compost-yard for some very rotten cow-dung, two years old at least, and some rotten leaf-mould and light loam. If these are not dry, use means to make them so: mix them with the hand well together, and add a little sand; then have your plants in some convenient place; remove a portion of the old soil, clear away all decayed leaves, and apply the top-dressing of fresh compost, very nearly filling the pots; press it rather closely to the stem of each plant; give a gentle watering with a fine-rose watering-pot, to settle the new earth; replace the plants in the frame, and attend to them carefully, as directed by us previously. This top-dressing greatly strengthens the plants, and consequently the blooms.

T. APPEBY.

GREENHOUSE AND WINDOW GARDENING.

THE FUCHSIA.—Of all the plants in our gardens, this has the prettiest name; it is, perhaps, the prettiest flower also; and, what is curious enough, the very oldest of all the fuchsias is as beautiful and elegant as any one of the many thousands that have hitherto been raised by cross breeding them. Of the best of the new wild species, it may be almost predicted that we shall never be able to improve on them: that is, in their own sections. Intermediate forms we have in great abundance, and these will go on improving, nobody knows how long. But *Fuchsia fulgens*, the glowing fuchsia of Mexico—*F. corymbiflora*, the cluster-flowered fuchsia from Peru—and the Queen of Fuchsias, *F. spectabilis*, also from Peru—have been so exquisitely finished by the hand of Nature, that no art can possibly improve them. The Queen of Fuchsias, as Dr. Lindley calls it, is the best of them all; or, the “loveliest of the lovely,” as the young gentleman who first discovered it wrote home concerning it. This ought to have been called the Marvel of Peru, if that name had not been pre-occupied; and, by the way, the scarlet Marvel of Peru is not unlike the Queen of Fuchsias. If envy was allowable, who would not envy the feelings of Mr. William Lobb when he first discovered this charming plant on the Andes of Cuenca, in Peru. We who live in happy England little know of the great hardships and dangers which botanical collectors, like Mr. Lobb, must necessarily undergo in wild and savage countries, looking out for beautiful plants for us to cultivate and enjoy, with all the

other blessings which are so abundantly vouchsafed to us in our temperate climate. Look again at the great expense and risk which must attend these expeditions; and, who can grudge the nurseryman a fair price for what has cost him so much labour, anxiety, and expense. Messrs. Veitch and Son, of Exeter, are the lucky gentlemen who raised the Queen of Fuchsias for seed, and in whose possession it now is—but I believe it will be sold to the public in the spring. A guinea a plant, no doubt, will be the price at first; and cheap enough too, if we would but remember the hundreds of pounds which Mr. Lobb's mission must have cost this enterprising firm. I hope, however, before the end of next autumn, this Queen of the Fuchsias will be cheap enough to be within the reach of all our readers; meantime, let us keep it in mind, the name of it—*"spectabilis"* (graceful) is very easy to learn, if we only think of spectacles, or respectable—words which sound very like it.

And now let us see what is best to be done with our present stock of fuchsias. They have all been laid up before winter arrived, in some out of the way place, safe from the frost; and before the end of February, some of them at least ought to be set growing, to come in for early bloom in May. The dry soil should be all shook away from their roots, and then the largest roots must be pruned back to within six inches of the stem, and the smaller roots trimmed a little. Then their branches must all get a regular pruning, the smaller ones to be cut back to the last joint, and the stouter branches to be cut to three or four joints next the main stems, and the tops of the old stems had better be cut back a little also, for this will render the plants thick and bushy from the bottom.

They are then ready for a new potting, and the first pots ought to be as small as just to hold all the roots without cramping them, yet some of the smaller roots may be turned round the pot in a regular way without doing any harm. The soil for this first pot ought to be light and rich; say, three parts light sandy loam, or any good garden mould, and one part leaf mould, or very rotten dry old dung, a handful of sand being added. This compost will enable the young roots to get a fair start at first. The soil for after pottings may be of a stronger kind. Fuchsias are fond of rough compost, such as pieces of turfy peat, some charcoal about the size of horse-beans, or broken bones of that size, and these—besides enriching the soil—will help to keep the whole ball more open, and free for the roots to spread in, and, therefore, the loam may be of a firm texture. Leaf-mould, or rotten dung, and a little sand, in the foregoing proportions, must be used in all the pottings; and always when the young white roots appear to get crowded round the sides of the pot, is the true sign when they, or any other plant, want another shift into a larger pot. They ought to be in their last pot for the season, by the time they are getting freely into bloom, and that is the best time to begin to give them good doses of strong liquid manure at every other watering. They are never at a loss for a good appetite, and, as they carry such a heavy crop of their beautiful carring-like blossoms, they require a generous diet.

They are excellent window plants, except in very hot summer weather, when they may stand outside, but it will be time enough to talk of that when the summer comes.

As to the mode of increasing them, they make roots as free as willows, if you stick them in the

ground. The bits of the branches you prune off at the first potting will make roots if you plant them in a pot of light soil; or even if you only place them round the sides of the pots in which the plants are, they will do well enough, and be ready to pot by the time the plants will require shifting. The cuttings would also root in little phials of water, hung up in the window, and this is a very interesting way of trying many cuttings. The phial that comes readiest to hand will do, as, if it is too deep for them, you have only to think of the sly old crow, which wanted to drink out of a deep pitcher, but would not trust her cunning head down the neck of it. Of course you recollect how she filled the pitcher with pebbles, till the water rose up to her reach: just do the same for your cuttings. If your phial is too deep, fill it up one half or so with mould, and pour the water over it; if the water is two inches deep it will do, and you may grow hundreds of cuttings that way. The phials may hang on nails, or hooks, round the sides of the window, right facing the sun: oleanders and hydrangeas, and, I dare say, many other plants, will make roots that way faster, and much easier, than in earth.

If you have a cucumber bed, there is another very curious experiment you may try with fuchsias, when they come into full leaf, namely—to grow them from leaves only. If you are dexterous enough, you might turn every leaf of a fuchsia into a new plant. Cut them off with their stalk, and plant them in very little pots, half filled with sand. Let the bottom of the leaf part just touch the sand; place them down close to the sides of the pot, with the tops of the leaves leaning inwards, towards the centre of the pot. Give them water to settle the sand, very close to their little stems, and you must keep the sand damp all the time they are forming roots. After a while, you will see tiny plants, like seedlings, coming up out of the sand, and when they are all up in this way, you can shake them out and repot them in a nursing pot, one size larger than that they were first in, and use half sand and half soil for this nursing.

I must now turn back to tell you the safest way to manage them after they are first potted in the sand. Take an empty pot, two sizes larger than the cutting pot, and place the cutting pot inside it; then place a piece of glass over the mouth of the empty pot, and if it is of the proper size, the top of the leaves in the inner pot will be just one inch from the glass covering, or if they are a little deeper down it does not matter much. The best place for them is the front side of the cucumber pit, as the sun does not reach that part so strong; and the reason for putting the glass over them, is to keep them from the air, which might otherwise dry and shrivel them up. You will find the glass quite wet on the underside every morning, from the dampness of the sand, and you must turn it upside down every day, that the leaves may have a dry covering overhead, otherwise the drops falling from the glass in so confined a place might damp and destroy them.

Now, this is really a most beautiful and curious experiment. The nicety and patience required to carry it through will learn you such a practical use of your eyes and fingers as will make you a good gardener so far for the rest of your life; and I can say, from experience, that a single potful of such plants reared in this way will give you more genuine pleasure than if you were to get a whole basketful of new plants for nothing, and the Queen of the Fuchsias added to the bargain. I recollect, as if it were but yesterday, the first cutting I struck. It was from that old sweet-scented plant, the Balm of Gilead.

I had it from a schoolfellow, whose father was a jobbing gardener, and all his children were fond of flowers, and I thought them very genteel because they had pot flowers in their windows, and if I could but manage to have flowers of my own I would be a gentleman at once. All that I recollect of my first cutting pot is, that it did not want for water, at any rate! but I rooted one out of three cuttings, and I am certain I have never thought that I have executed a more clever feat since. Yet the Balm of Gilead is easier to root than a fuchsia, and though a very old plant, it ought to be seen in, or about, every cottage in the kingdom. It is almost hardy, and will keep green all winter in a window. The flower is nothing—it is the peculiar fragrance of the leaves for which it is remarkable. When rubbed, they emit a strong resinous scent, which is agreeable to most people, even to those who are not able to bear the scent of many kinds of flowers. The associations connected with the plants mentioned in the Scriptures are always pleasing, and this name more so than most of them. Jeremiah (viii. 22.) makes a beautiful figure of language, when he asks, "Is there no balm in Gilead? is there no physician there? Why then is not the health of the daughter of my people recovered?" Our plant, however, is not a native of the wild hills of Gilead beyond the Jordan. It grows much nearer home, in the Canary Islands.

Where there is a good stock of fuchsias, some of them may be left in their winter quarters a long time yet; even till it is safe to turn them out into some sheltered corner, where a good mat will protect them from the late frosts. Thus a succession of blooms of them may be had through the whole season.

SCARLET GERANIUMS that have been kept dry, as recommended, ought now, or very soon, to be brought to light. If they received much injury, as sometimes they do in their winter stores, they will require a particularly good treatment at first. If they are in pots, which is the safest way to winter them, do not, on any account, shake them out of the dry soil at first. Hundreds of soft-wooded plants, that have been kept safely over the winter, are killed every spring, by the bad practice of shaking them from the soil at first, as I have just recommended to be done with fuchsias, which are of a very different and opposite, or hard-wooded, nature. We must get rid of the rule of thumb, which treats all plants and seeds, at particular stages, alike. Thus, one man plants, or pots, a dry bulb and waters it immediately, as if it was a camellia; another takes out his scarlet geraniums about the end of February, and shakes the dry mould from their roots, as if they were fuchsias; whilst a third sows his *calceolaria* seed, which, although they are as small as dust, he will water immediately, as if they were turnip seeds. Now, if THE COTTAGE GARDENER can break through this thimble, even at the risk of breaking some of the more stubborn of the thumbs, it will be doing a great service to gardening. Therefore, when you take down—for I suppose they are somewhere up stairs—your scarlet geraniums, take a sharp knife, and cut out every spot and speck which appears dried up or dead, and see that every wound is left fleshy and quite green. If it is the least brown or streaky, you must cut lower down still. There must be no squeamishness about the matter; if you should have to cut down as low as the surface of the pots, you must not leave a morsel of dead matter on the plant. Then, with a sharp pointed stick, loosen the surface of the soil, breaking it quite fine, and the work is finished. No watering, recollect, or any kind of

codling, till all the wounds are perfectly dry. Anywhere about the kitchen is better for them now than the best greenhouse. All that they want now, is to be left to get round in their own way, and some of them will get over their wounds faster than others, like other patients, and you have only to look upon them as a set of dry bulbs, newly potted, and you cannot go wrong. The dry heat of the kitchen will soon heal their wounds, and set their blood in circulation. Be in no hurry, however, to water them. All their smaller roots have been killed in the drying; therefore, water *may* do them harm, but cannot be of any use to them. Their own vitality, or living principle, is sufficient for all their present wants. By-and-by, buds will appear; and after that, tiny leaves; and now, the large roots are making small white fibres, no matter how dry the soil about them may be. This is the moment to water them for the first time, and you may give them a good dose, if you have looked that the drainage crocks are freed from the old ball. When the more forward buds make shoots an inch long, is the time to shake the old soil from them. You can then prove what I said about dead and living roots.

CINERARIAS.—The more forward of these should now be shifted into their blooming pots. Use a rich compost; keep them regularly watered; and see about dry mould, clean pots, and stuff for drainage, as potting-time is fast arriving. D. BEATON.

THE KITCHEN-GARDEN.

SLUGS.—We fear, after the many months of mild, moist weather, which occurred during last autumn and the present winter, slugs have been active, and will shortly come forth in still greater numbers from their hiding places. Their ravages will then be felt in every department of the garden, but especially in the kitchen-garden, where young seedlings of the cabbage, lettuce, and pea tribes, are especially liable to their attacks. There are many ways to trap and to destroy these vermin, but the most successful and sweeping mode to operate upon them is to have some fresh brewers' grains in a bucket, and from these to drop upon the bed pinches here and there as fast as you like to walk. Do this in the dusk of the evening, and about three hours afterwards go round with a bucket of freshly-slaked lime, and sprinkle some over the numerous guests which will have collected to partake of the grains. If slugs abound, and the evening is quiet and moist, they will collect in a short time about the grains in multitudes not to be imagined by those who have not put this simple method to the test. Then our method is, to send a boy round, at day-break, with a small spade or garden trowel, to collect the betrayed foes into a bucket, or to bury them at the spot, if it does not interfere with the crop, thus converting a destructive enemy into a manure at once. New bran, also, is a most excellent bait, if dropped about in the same way, but we find it does best scalded first, as it appears the slugs are attracted to it by the smell. Scooped-out turnips, cut in halves or quarters, placed about with the outsides of the turnip upwards, will also attract slugs; and so will Swedish turnip tops, cabbage leaves, brocoli leaves, and many other articles of that kind; but thus to destroy them in a large garden amounts to much labour, which is only another word for expense. Salt is also a very good article applied on dull, misty, mild nights, or early in the morning, but it requires to be applied with much caution; be-

sides it only destroys those that are out from their hiding places, and those only which the salt happens to fall on. The same may be said of slaked lime. Let it also be borne in mind, that a great help to keeping the soil free from slugs, and other vermin, is to trench and drain the soil well. Forking, hoeing, and surface-stirring, on every suitable occasion, all tend to the same good result, at the same time that they promote the health of the growing crops.

ROUTINE WORK.—Now that the season is advanced, work must be got forward, and advantage taken of all opportunities, according to weather, soil, and the preparation made. Full crops of Long-pod, Windsor, and any other kinds of *bean*, should be planted. Good varieties of *cabbage* should be sown on well-dug, rich soil, in a sheltered situation. *Brocoli*, *borecole*, and *nohl-khol*, *kohl-rabbi*, *early horn carrots*, *chervil*, and *cauliflower*, should be sown, each to be protected slightly with a covering of mats, or other available article, and secured from the ravages of birds by nets or boughs. Also *spinach*, for full spring crops, *lettuces*, *radishes*, and small *salading*. *Peas* should now be sown in full crop of the best varieties. *Endive* should be blanched, and early *cabbage-lettuce* protected.

FRAMES.—Those used for cauliflower, lettuce, and asparagus forcing, as soon as done with, take care to have in view, and in good order, so that no loss of time shall occur when they are again wanted for early varieties of *potatoes* turned out from pots or boxes, early *dwarf French beans*, *cucumber* or *melon* plants, or whatever may be most requisite. Pay strict attention to *cucumbers* and *melons* already ridged out, giving them abundance of air night and day, with very light covering at night if the weather continues quiet and mild. This treatment is essential to maintain the plants healthy, sturdy, and for the production of a good, lasting, crop of handsome fruit.

POT-HERBS—such as balm, burnet, fennel, mint, pennyroyal, sage, savory, tansy, tarragon, and thyme—should now be planted. They all require a well-drained, light soil. Do not put any fresh dung into the ground prepared for them, but a little bricklayers' liny rubbish improves their quality. The object to be obtained is intensity of flavour, not luxuriance of growth.

GARLIC AND SHALLOTS plant on the tops of slight ridges. Put a pinch of soot, or of charred garden refuse, on every spot where you are about to insert an offset, or clove, of either of these bulbs, and then press the offset into it, so as not to bury it more than half its length.

ONIONS.—The weather is so fine that we should recommend the main crop to be sown now, or before the month closes. Select for them ground where celery has been grown. The onion prefers a rich friable soil on a dry substratum; a situation enjoying the full influence of the sun, and entirely free from trees, which are very injurious to them. If the soil be poor or exhausted, abundance of dung should be applied in the preceding autumn or winter, and the ground thrown into ridges. By these means it becomes well decomposed and incorporated with the soil; for rank unreduced dung is generally hurtful, engendering decay, and inducing maggots; if, therefore, the application of manure is neglected until the spring, it should be taken from an old hot-bed, or other source, whence it is to be had in a thoroughly putrescent state, and turned in only to a moderate depth. Sea-sand, particularly if the ground is at all

heavy, is advantageously employed; coal-ashes, but especially soot, are applied with particular benefit. In digging over the ground, small spits only should be turned over at a time, that the texture may be well broken and pulverized.

Sow the seed thinly, in drills, eight inches apart. An ounce of seed, if so sown, is abundantly sufficient for a square rod of ground, especially for the main crops, as they should never be allowed to grow to a size fit for salads without thinning. The beds should be divided by narrow alleys, into four feet widths, for the convenience of giving the necessary frequent weedings and hoeings.

G. W. J., and JAMES BARNES.

THE FRUIT-GARDEN.

[Mr. Errington's contribution to this department not having arrived at the time of our going to press, we have to substitute the following highly useful communication from Mr. Beaton.—ED. C. G.]

PRUNING.—You desire me to give you my reason for disapproving of the wood-cut given in No. 2, p. 77, of THE COTTAGE GARDENER, as a model for pruning young shoots; and as one reason, in a good case, is as good as ten, I shall only give one, although the shape and equilibrium of a whole tree turns upon this very point. All wounds die back, more or less, after winter pruning, those of young shoots more so than those of older wood; therefore, when you cut close under a bud, as in the wood-cut referred to, say about the end of October, nature cannot heal that wound till new wood is formed next June and July; and in this long interval it is a hundred to one if this close wound does not perish the wood immediately under the bud, so that, if it starts at all, it will only make a weak shoot, and the next bud below it will become the leader, and thus derange the shape of the tree at once. A vine shoot, a cherry, currant, or raspberry, or, indeed, any soft shoot with a large pith, cut in that way late in the autumn, would be as certain to kill the bud over it as that two and two make four.

Close cutting under a bud is only applicable to summer pruning, and that is the only true way for pruning in summer, because then new wood would heal over the wound in a short time. I cannot now refer to No. 2, for it is at the other side of the parish; if the wood-cut there is meant only for summer pruning, my objection falls to the ground.

Now for authorities. In the last edition of London's Encyclopædia of Gardening, the wood-cuts for general pruning are given like yours, and, therefore, are wrong in principle, without the shadow of a doubt. I know, however, that when that immense work was first written Mr. Loudon was in very ill health, and that many things had to be altered in the other editions, but the wood-cuts for pruning were never altered. In London's "Suburban Horticulturist," a work on which he spared no pains, he corrected the mistake in the Encyclopædia, at p. 454, and assigned the same reasons as above—therefore, Mr. Loudon is free from this error. Now turn to the "Gardeners' Chronicle" for 1847, p. 19, the latest authority, and there you will see that Dr. Lindley has given six wood-cuts, shewing the good, bad, and indifferent modes of cutting young shoots. No. 1 he calls the best, and, as far as my memory serves me, this No. 1 is exactly the same as yours; therefore, according to my view of the question, it *must* be wrong. The thing is so familiar to my mind and eye, that I am as satisfied that both

Dr. Lindley and you are wrong, in this instance, as I am of my own existence. I am equally satisfied that Dr. Lindley never meant it for general pruning, but only for summer pruning, although he did not say so. His fig. 5 is the true way for winter pruning, but he must have meant summer pruning, since he says distinctly, "in some trees it (No. 1) will, in fact, heal over in a few weeks," and if it did not, and had to remain from November to June, it would assuredly kill the bud right out. Farther on, in the same volume of the *Gardeners' Chronicle*, Mr. Thomson, fruit gardener to the Horticultural Society, one of the best and most scientific pruners of the age, has given wood-cuts showing how to prune most of our fruit-trees, every one of which are true. He leaves full half an inch beyond the bud, and in the raspberry more than that, with the bud as I insist on; but in summer, he cuts close under a bud, to my own knowledge. I never allow a close cut in winter pruning, and I always insist to begin the cut on the same side as the bud is on, except on wall trees, where we make all cuts next the wall, and on the opposite side from the bud, but a half inch above it.

Therefore, the question stands thus:—In summer, prune close under a bud, in order that there may not be any snag to prevent the wound healing over immediately; but in winter pruning, cut from a quarter of an inch to an inch in advance of the bud, to prevent the wound from destroying the bud; and by making the cut on the same side as the bud is on, you give a greater length of living wood beyond the bud, without increasing the length of the snag; and by cutting on the opposite side from the bud, the snag may be the same length as in the other case, but the living wood beyond the bud will be lessened, according to the angle of the cut. Therefore, it is plain enough which is the best side to cut from.

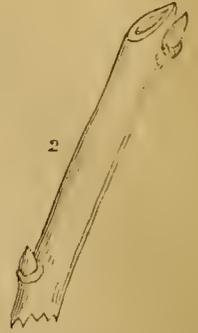
In all gardens and nurseries, in my time, cutting off the snags left at the winter pruning forms a chief item in the summer pruning; and, with all our philosophy, we cannot possibly vary our practice without running the risk of doing infinite mischief. You can form no idea of the mischief and confusion I should make in this garden if I was only to act for one season on the plan of close cutting in October and November; and, whether I have convinced you or not on the point, you will see that I had my reasons for pointing out to you what I consider to be wrong. We are all seeking after the truth. We cannot always escape errors of the press; but principles founded in error must do no good. Now, recollect, all this is merely for your own use, and an explanation between two friends; and see that it does not slip through your fingers, in the hurry of business, and get into the hands of the printers.

D. BEATON.

[There is too much sound information in the foregoing communication for us not to ask Mr. Beaton's permission to publish it; and, with some reluctance, he has consented. We were the more

anxious to publish it, because he furnished us with the accompanying illustrations of his mode of making the cut in pruning; and because, with all that he says we must fully coincide.

In these outlines, No. 1 represents the winter pruned shoot, and No. 2 the summer pruned. If Mr. Beaton had had our second number to refer to at the time he wrote, he would have seen that the mistake was with the engraver, for we recommend the cut in winter pruning to be "half an inch above the bud." When we wrote, we did not contemplate cutting off the snags in the summer, as mentioned by Mr. Beaton, but which is a most excellent practice.—Ed. *C. G.*]



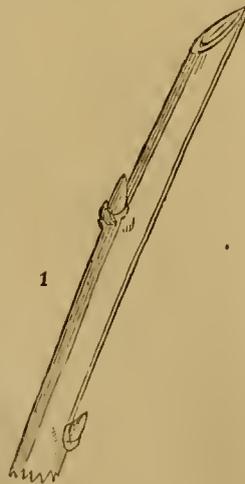
MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 17.)

THE gem of February is the crocus. Our borders are now glittering—or about to glitter—with the golden, cup-like flowers of this lively plant, and also with those of snowy white and purple, forming a gay and early introduction to the richer and rarer beauties of the advancing spring. The bunches of the graceful snowdrop have long been our sole companions. Very early in this mild season they stole forth from their long sleep, and spoke of the bright and beautiful sisterhood so soon to follow in their steps. The crocus is the first that comes gaily to meet us: it is a native of the south of Europe, and especially abounds on the hills of Greece. Even in some parts of India, the yellow, and also a pink crocus, has been found in a wild state. This is another instance of God's wondrous power and love, that in our cold and northern climate the lovely natives of warm and sunny lands should be willing and able to cheer and delight our minds, as the first harbingers of spring. They have been called, by the voice of the Creator, to brighten our dark and wintry days, while other flowers are absent: and although many reject their simple beauty, yet, to the *unfashionable* garden lover, they are very dear. The crocus was first brought into England about the time of Queen Elizabeth, and thus marks a most interesting and important period in the history of Protestant England. I seldom see the feathered crocus in gardens; it is a lovely variety, and should be generally encouraged.

The Pontic Daphne is an extremely pretty evergreen shrub, and is at this time displaying its coronal of delicate green flowers among the dark, polished leaves. I remember when first I saw this plant I mistook it for a rhododendron; there is some similarity in their appearance, but the Daphne grows on rough, uncultivated ground, on banks, and under trees, and is, therefore, a far more useful shrub. In my dark, shady garden, beneath the boughs of a spruce fir that sweep the ground—where nothing grows but the luxuriant ivy—there stands a self-sown Pontic Daphne, as rich in foliage, in colour, and in flower, as any of its more brightly seated brethren. This is worth knowing, because in gardens like my own, screened from the south,



and overhung with trees, some ladies may be wishing to find a shrub that will form a variety with the laurel, and the Pontic Daphne is well suited to do this. I cannot tell to what height or size they will attain; those I have seen are small, but then they have grown in hard, unfriendly soil, and this may have checked their growth.

Ranunculus roots ought now to be planted. These flowers are very rich and handsome, when somewhat attended to, and I do not see them so generally cultivated as they ought to be. They should be planted together in beds, and the effect, in the blooming season, is beautiful. The soil they thrive best in is a fine, rich, and loamy one. Where the gilt-cup grows luxuriantly, the soil will be best adapted for the ranunculus; and if you can have it mixed with manure, do so by all means. Rake the bed till the earth is fine, and then, with a dibble, plant the roots separately, one inch deep, *provided* you can cover them to the depth of another inch with fine, rich soil; if not, the holes must be made two inches deep at first. In examining closely the crown of a ranunculus root, some small protuberances will be found, from each of which a shoot will spring; the root may, therefore, be divided by a sharp knife into as many parts as there are protuberances. This will lessen the danger of losing any favourite variety. The beds which these plants occupy should not, if possible, be filled with any other plants after the roots are taken up, but be left to pulverize and sweeten till they are replaced in it. To contrive this, without disfiguring the garden much, two or three small beds should be set apart for them, and so placed among the other beds and borders as least to offend the eye when left empty; and if each bed was neatly edged with thrift, or some later flowering border plant, the unpleasant appearance of empty beds would be much lessened.

We should now begin to make our gardens look neat and dressy. Leaves may be swept up, with something like success, and added to the heap accumulating for our future wants. Weeds will be springing up thick and fast around us. The warm, sensitive, and balmy shower, that nourishes the good seed, causes, also, these troublesome intruders to increase, which lay very quiet during the cold and dreariness of winter. Our own hearts respond to this. In prosperous days, how many evil thoughts and passions awaken, that during the depressing influence of trial, or the absence of temptation, which poverty may cause, nestle so quietly within us, that, till sunshine arouses them, we would not believe dwelt in or even near us! "Is thy servant a dog, that he should do this great thing?" is the indignant exclamation of our hearts, as it was of Hazael. Let us carefully weed and clear our beds and borders; but let us use equal diligence, at least, to clear that weedy, stony soil, where the fruits of the Spirit ought to spring up and flourish, but which too often bring forth tares alone.

It is delightful now to see the cottager beginning to work, once more, in his peaceful garden. A death-like stillness rests there during winter, and, too often, the labourer's beds and borders then appear neglected and untidy; but when we hear the spade at work as we pass along the lane, and smell the sweetness of the newly-dug soil, we know that cheering times are coming on, and that not one hour in the lengthening day need now be idled away—every stroke of the spade tells. It is pleasant to see the ploughman whistling on the back of the fore-horse, as he paces slowly onwards to the field, while

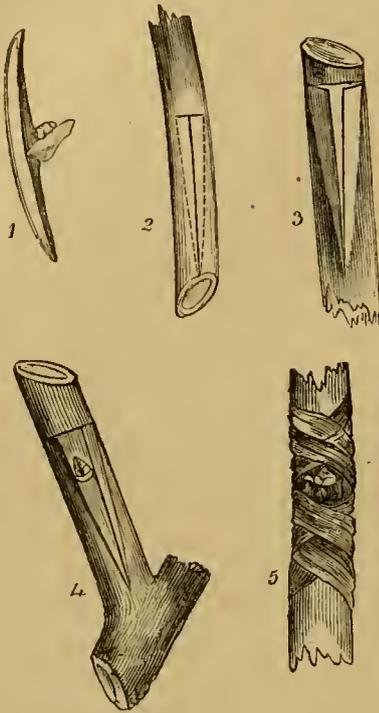
the lark soars, and sings merrily, to welcome the reviving spring; but it is even pleasanter to watch him at the evening hour busy among his cabbage beds, his children playing round him, and his wife joining in his toil. An English cottager is an important part in England's frame-work. A foreigner may say to us, "Come and look at our vineyards, our olive groves, our boundless tracts of grain, our silver mines,—aye, our gold fields, where you may grow rich in a day." What says old England's sturdy son?—"Come and look at our farmers, our cottagers, our tillers of the soil,—these are, under God's blessing, the gold fields of the British monarch, her jewels, and her strength. The humblest of her subjects have done more for her than all her army could. They rose, as one man, to uphold *her*, when thrones and sceptres went to wreck; and while they are encouraged and protected, the crown sits lightly and firmly on her head."

Yes—while the Protestant institutions of our land are preserved—while the agriculturist flourishes—and THE COTTAGE GARDENER thrives—*above all*, while the fear and love of God dwells in our hearts, and the Bible lies open before us—England may sit quietly behind her wooden walls, and say, "The Lord is my light and my salvation; whom shall I fear? The Lord is the strength of my life; of whom shall I be afraid?"

BUDDING ROSES.

IN answer to many inquiries, we offer the following instructions:—Having procured your stocks and planted them, the next thing to attend to is, to procure a proper budding knife, and some white, soft, worsted string. Roses do not graft well, or succeed well, when grafted. The great rose growers always bud their roses. The best seasons are March and July; perhaps, so far north as some of our questioners are, the latter season might be preferable. The best time of the day is either early in the morning, at least as early as seven o'clock A.M., or after three o'clock in the afternoon; cloudy, moist days are most suitable. Cut off the head of your stocks, and all the side branches to three, that is, for standards. For dwarfs, cut off to within six inches of the ground; then, with the knife, make an incision on the upper side of the young side branches, as close to the main stem as possible. This incision should be about an inch long, lengthwise on the branch. Cut a cross just at the top of this incision, in a direction somewhat more slanting than in the annexed drawing, (fig. 2). Then take off the bud, previously cutting off the leaf, leaving part of the leaf-stalk. Cut away with the bud a portion of the bark from the parent stem, which is technically called *the shield of the bud*, and a portion of wood with it. This bud, and the bark and wood with it, should be, altogether, rather more than $\frac{1}{4}$ of an inch long. Turn the bud over between your finger and thumb, and dexterously take out the greater part of the wood, but be careful to leave the wood full in the eye of the bud. Then raise one side of the bark of the incision, in the shape of a T made in the stock, and, with the ivory handle of the budding knife, slip in one side of the bark attached to the bud, then turn your knife, and lift up the other side of the incision, and the bud will drop into its place: press the bark of the bud to the farther end of the incision, and, if any projects beyond the cross incision on the stock, cut it off. Then tie with the worsted neatly, and the operation is complete. We feel it almost impossible to give instruction, to be understood, in

words only, for such a complex operation. We have, therefore, given the following woodcuts to shew all the several parts of this interesting operation.



1. The bud, with the wood taken out, and ready to be put into the stock side branches.
2. The branch, or stem, with the incisions made, previously to raising the bark.
3. The bark raised for receiving the shield of the bud.
4. The bud fitted into its place.
5. The bandage put over the parts. It is here represented as done with a shred of bass-mat, but stout worsted thread is better.

T. APPELBY.

TO CORRESPONDENTS.

AGAPANthus (*W. H. Islington*).—You say, that "when your plant had done flowering, as it appeared to consist of two offsets, you divided them, and put them into separate pots, keeping them in a cool, airy room during the winter, and watering them sparingly."—It would have been better to defer the operation of dividing your agapanthus till the end of March; such plants, although they may flower in summer, will not finish their annual growth till late in the autumn; therefore, you must have checked its growth, in some measure, by dividing it during the growing season. The proper time to divide this plant, and indeed almost all plants, is just at the time they begin to grow in the spring. Your winter treatment is right: allow it plenty of air in fine weather, and water sparingly till it begins to grow. You will not see much change in the size of its stem till it makes a fresh growth.

GLADIOLI (*Ibid.*).—Your bulbs of these, potted as we directed, and kept similarly treated with your agapanthus, have been managed fairly. After the frosts are over, you may then put them out in the sun all day, meantime give them plenty of air and light, and water them more freely as they advance; we shall often allude to them in our weekly notices.

FRUIT TREES FOR WALLS (*T. Picton*).—Against your wall facing the north-west, plant morello cherries; against that facing the south-east, Moor-park apricot, any of the peaches you may prefer in our list at page 209, and a Pittaston orange nectarine, and an Elrnge and early Newington nectarine. If you are residing in any of our southern counties, your east wall, having half a point to the south, will also ripen peaches very well. Plant a Morello cherry against the end of your house facing the north, if you wish for fruit; or ivy, if you wish only for shelter and ornament.

VEGETABLE MARROW (*S. F.*).—We prefer sowing the seed in pots plunged in a gentle hot-bed, early in April, and planting the seedlings out in May, when they have four rough leaves, on a rich soil, in a warm, sheltered situation. The roots need not be disturbed when turned out from the pots, and a slight shelter at night for the first week will be sufficient. In dry weather, they require a daily supply

of water and liquid manure alternately. The training required is the same as for the cucumber.

INK FOR ZINC LABELS (*An Amateur*).—The receipt we gave at page 206 is the only one that we know. We have used it ourselves, but we certainly did not put the writing out into the rain immediately after we had written on the zinc. Try again, and let the writing remain in the dry for three or four days, before exposing it to the weather.

THE MOUSE AND THE PEAS (*T. R. Lloyd*).—The mouse will not be checked from attacking your peas by your soaking them in onion water; even asafetida does not offend them sufficiently for such purpose. The only effectual guard for your rows of peas is, to cover over each row, eight inches wide and one inch deep, with coal-ashes. The mice will not burrow through this covering, and its black colour, by absorbing more heat, you will find to hasten forward the growth of your peas.

RHOODENDRONS (*An Enquirer, Bank of England*).—You ask us "for the best time and mode of propagating" these.—Now, as we do not know for what purpose you wish to propagate them, we are at a loss whether to recommend you to sow their seed, or to graft, layer, inarch, or to plant cuttings. If you will state your object, we will give you all the information we can.

IMPROVEMENT OF SOIL (*J. C. Smith*).—Your soil, according to the specimen sent to us, is deficient in alumina (clay)—so very deficient, that if you put on 100 tons per acre of clay, or of clayey marl, or even of brick earth, from any pit in your neighbourhood, you will not give it too heavy a dressing. We do not know the depth of your soil, nor the nature of your subsoil, or we should be able to advise you as to trenching it. You will find three or four slight dressings of salt, at the rate of five bushels per acre each, put on at intervals of two months, will assist your crops, but no permanent improvement can be effected without claying.

SPADE HUSBANDRY (*W. T. Loudon*).—The advantages of this, when pursued on a large scale, are not topics exactly suited to our columns. We may enter upon it, however, when we have an opportunity, being well aware of its advantages. In the meantime you can obtain abundant information relative to it from the volume on Flemish Husbandry, written by the late Rev. Mr. Rham, and published in the Library of Useful Knowledge. Another work, equally cheap, and even containing more information, is Dr. Yellowly's little publication "On Spade Husbandry."

LEMONS AND ORANGES (*J. N. B.*).—These will live in your conservatory, which has no artificial heat, and, with a slight shelter, would not be killed by a severe winter, but they will not thrive. The most successful cultivators of these fruits never allow the heat in which they grow to fall below 50° in the winter, and in the summer they keep up a moist day-heat of from 80° to 90°.

CAMELLIA SHIFTING (*Ibid.*).—These, which are now growing in the borders of your conservatory, had better not be moved until the young wood of this year has ripened, and the blossom-buds of next year can be seen at the ends of the shoots.

POTATO-PLANTING (*A Novice*).—You will have seen full particulars on this subject in our last number. Grow early-ripening sorts, such as Walnut-leaved Kidneys for the first, Ash-leaved Kidneys to succeed them, and London Early Round for your main crop. The earliest will be fit for taking up in June, and the last early in August. Plant the two first kinds in rows, 18 inches apart, and 12 inches from set to set; and the third kind 2 feet by 18 inches.

ONIONS (*Ibid.*).—Apply charred refuse to these, by sprinkling it a little thickly along the bottom of the drills, before you sow the seed; but both for them and turnips, two barrow-loads may be dug into every square rod.

MANURE FOR POTATOES (*J. Rector*).—You will have seen in our last number, at p. 216, our opinion as to manuring with soot and salt. Do not add any lime to them, as it would only help to drive off the ammonia in the soot. You had better spread this compost over your ground just before you dig it.

FILBERTS AND COB-NUTS (*T. Lindsay*).—You may move these with success during the present month, if careful to injure the roots as little as possible, and to keep them moist until again planted. Your hint about the heading shall be attended to.

ROSES (*J. M., Dublin*).—You say that your roses against a paling 100 feet long, facing the north, and on the top of a turfed bank, do not thrive.—We recommend you to take off the grass, next the paling, the width of two feet. Examine the soil. If not dry and good, drain it, and procure some good loam and dung; remove the old soil to the depth of 15 inches, and replace it with the new. If dry and good, add two bushels of super-phosphate of lime, and of either rotten dung or leaves one cart-load; mix them well with the soil. Roses will grow on grass after they have been established two or three years. You might mix a few honeysuckles with advantage amongst the roses. The following roses are very hardy, and will thrive in the coldest situations, if the soil is good and dry: Ayrshire Queen, Thoresbysna, Dundee Rambler, Miller's Climbing Purple, Queen of the Belgians, Ruga, Crimson Boursault, Elegans and Red Boursault, Felicite Perpetual, and Madame Plantier. We are not surprised that China Roses do not succeed. Your situation and aspect are much too cold for those tender roses.

[CORRESPONDENTS who are not answered will be pleased to understand that their communications will be inserted in our double number, or that we are waiting for information, to give them a more satisfactory reply than we could without previous inquiry.]

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 22—28, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
22	Th.	Sun's declin. 10° 7' s. Lesser Periwinkle	Common Daisy.	2 a. 7	26 a. 5	6 40	29	13 45	53
23	F.	Earthworms lie out.	Apricot.	0	27	sets.	☾	13 37	54
24	S.	St. Matthias. Ds. Cambridge B. 1774.	Royal Fern.	VI	29	7 a. 24	1	13 28	55
25	SUN.	SUNDAY IN LENT. Ring-dove coos.	Peach.	56	31	8 40	2	13 18	56
26	M.	Gooseberry leaves open.	Lesser Periwinkle.	54	33	9 54	3	13 8	57
27	Tu.	Red Currant leaves open.	Lungwort.	52	34	11 9	4	12 58	58
28	W.	EMBER WEEK. Alder flowers.	Purple Crocus.	49	36	morn.	5	12 46	59

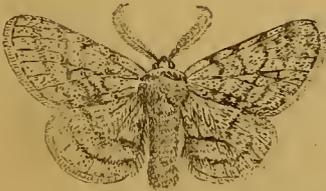
ST. MATTHIAS was chosen by lot (Acts i. 26) to fill the apostleship, vacant by the death of the apostate Judas. He was murdered by the Jews.

EMBER WEEK.—See page 105.

PHENOMENA OF THE SEASON.—The time for sowing has arrived, and we will detail, from week to week, according to our space, the changes which so secretly and so wondrously occur to the seed, after it has been placed within the soil. To enable these changes to be effected, or, in other words, to enable the seed to germinate or sprout, there must be a certain degree of warmth in the soil, and to this point, for the present, we must confine ourselves. If we except the snow mushroom (*Ureda nivalis*), we know of no plant, certainly of no cultivated plant, the seed of which will sprout, either below or at the temperature at which water freezes. A temperature above 32° of Fahrenheit's thermometer, therefore, is requisite. But, on the other hand, the temperature must not be excessively high. Even no tropical seed, probably, will germinate at a temperature much above 120°; and we know, from the experiments of H.M. Edwards and Colin, that neither wheat, oats, nor barley, will vegetate in a temperature so high as 113°. Every seed, differing in its degree of

excitability, consequently, has a temperature without which it will not vegetate, and from which cause arise the consequences that different plants require to be sown at different seasons, and that they germinate with various degrees of rapidity. The gardener should always bear in mind that it would be a very wrong conclusion, because a seed does not germinate at the accustomed time, that, therefore, its vegetating powers are gone. No two seeds taken from the same seed-vessel germinate precisely at the same time; but, on the contrary, one will often do so, while its companion seed will remain until another year, and will then grow. M. de Candolle relates an instance where fresh tobacco seedlings continued to appear annually, for ten years, on the same plot, though no seed was sown after the first sowing; and the same phenomenon usually occurs for two or three years, when the seed of either the peony or hawthorn are sown. Why one seed is more easily excited than another is, as yet, unexplained; but the wisdom of God, in this one of many provisions for avoiding the accidental extinction of a species in any given locality, is readily discerned. An ungenial spring may destroy the plants from those seeds which first germinated; but this could scarcely occur also to those of the second and third year, or even to those which were only a few weeks later in their vegetation.

INSECT.—The Brindled Beauty Moth (*Biston hirtarius*) does not usually appear until



April; but, as it has been providentially ordered, when the winter has been very mild, it appears, like the leaves on which it feeds, during March, we are not much out of order to introduce it in our present Number. We are indebted for the following particulars to that most beautiful and accurate work—Humphrey's and Westwood's "*British Moths*." When the fore-wings are expanded, they measure from 1½ to nearly 2 inches across. They are of a dark yellowish-grey or brown colour, thickly spotted with fine, dusky atoms, and three or four dark streaks, generally equi-distant, but sometimes running into each other, on the hind margin. Of these streaks, one beyond the middle is the broadest and most curved. The hind-wings are similarly coloured, having, generally, three nearly imper-

Feb	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
22	Cloudy.	Cloudy.	Showery.	Snow.	Snow.	Cloudy.	Cloudy.	Cloudy.
	42°—38°	50°—34°	52°—41°	40°—19°	37°—31°	57°—47°	46°—39°	51°—39°
23	Cloudy.	Cloudy.	Fine.	Cloudy.	Snow.	Showery.	Frosty.	Fine.
	44°—32°	50°—46°	53°—37°	50°—33°	44°—31°	58°—50°	42°—27°	55°—41°
24	Showery.	Cloudy.	Cloudy.	Fine.	Cloudy.	Showery.	Frosty.	Cloudy.
	46°—36°	47°—33°	43°—34°	51°—27°	45°—28°	59°—49°	41°—27°	53°—44°
25	Cloudy.	Showery.	Showery.	Showery.	Cloudy.	Fine.	Frosty.	Showery.
	42°—35°	45°—23°	38°—32°	51°—37°	49°—37°	58°—34°	46°—21°	54°—43°
26	Rain.	Showery.	Cloudy.	Showery.	Cloudy.	Fine.	Cloudy.	Rain.
	48°—35°	48°—36°	46°—34°	52°—26°	52°—35°	60°—39°	39°—25°	51°—39°
27	Showery.	Rain.	Rain.	Frosty.	Cloudy.	Showery.	Frosty.	Rain.
	45°—32°	44°—36°	40°—37°	40°—32°	50°—35°	62°—38°	35°—28°	55°—42°
28	Fine.	Fine.	Cloudy.	Fine.	Cloudy.	Fine.	Cloudy.	Fine.
	47°—32°	51°—42°	41°—31°	51°—29°	31°—25°	64°—42°	38°—32°	56°—35°

ceptible, dusky, equi-distant, slender streaks (strigæ). The female has more transparent wings; its broad transverse bands are less distinct, and the colours less bright. The horns (antennæ) in the males are not quite feathered to the tips. The caterpillars appear in May; they are usually greenish-brown, with greyish marks, pale stripes, and numerous purple-like knobs (tubercles). The caterpillars feed on the leaves of various fruit-trees, especially those of the plum family, as well as those of the privet, lime, and elm. They change to the chrysalis state in July, and remain in that state until the spring following.

If anything warm is covered over by another, it cools fast if the covering takes the heat from it rapidly; and slowly if the covering takes the heat from it less quickly: we all are aware of this, therefore we put an extra blanket on our bed in winter, because woollen takes away heat slowly, or, in other words, is a bad conductor of heat; and ladies wear muslin dresses in summer because "they are cooler," that is, they conduct the heat away from their persons more quickly than the thicker fabrics which they adopt in winter. For precisely similar reasons the gardener is content to let his frame plants have no other cover than a film of glass in May, but in winter

he covers over this such worse conductors of heat as double matting and asphalted felt.

It is very easy thus to control the cooling of a body, which cooling arises merely from the heat being taken or conducted from it by another body touching or covering it; but there is another mode of cooling, by radiation, with which the gardener is still more interested, and to prevent this is more difficult, for it takes place by day as well as by night, and, during the first-named part of the twenty-four hours, the gardener must admit the light while he shuts in the warmth.

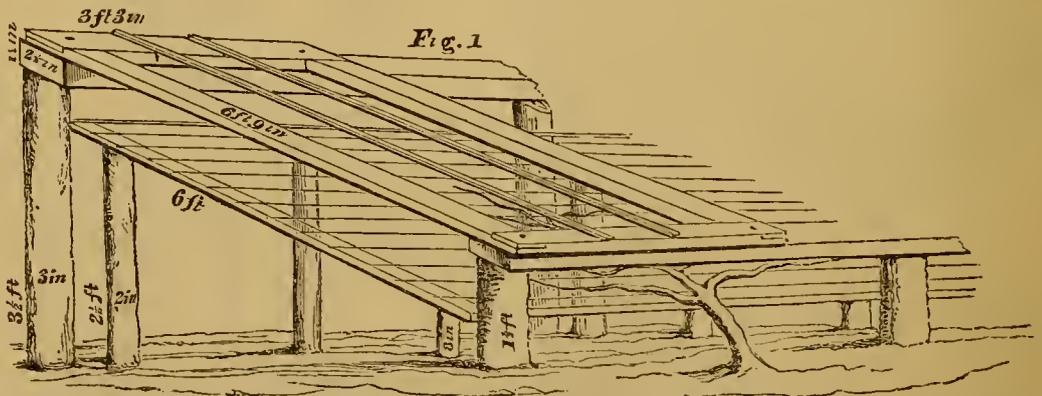
By radiation is meant, that the rays of heat dart

away into the air as the sun's rays do to our earth, and as they do from any hot body, such as the soil of a border at night after being exposed to a bright sunshine by day. The surface of a soil thus exposed often becomes heated to 90 degrees during the day, from mere exposure to the heat radiated upon it by the sun, and if this heat could be retained, as it would be if the soil could be protected from cold winds, and if the heat could be prevented radiating from it at night and during cold days, then might many plants be kept all the year in our borders that now require to be wintered in greenhouses; and many crops could be obtained early and with certainty, which, at present, can only be grown in expensive buildings, and with imminent peril of total failure.

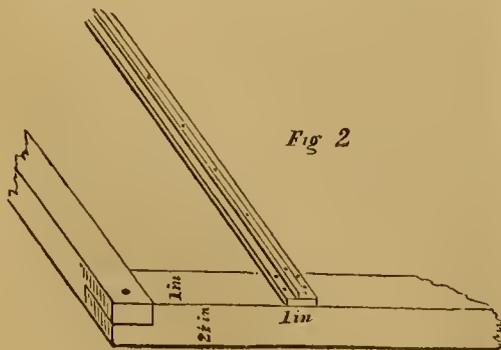
It is curious how very slight and even very distant coverings will prevent the heat radiating from the earth. Every one must have noticed that a clear starlight night in winter is usually colder than a night that is overcast, and this arises from the clouds checking the radiation of heat from the earth. We have often tried the great power to prevent radiation possessed by very slight screens; for example, a

thermometer, placed upon a grass plot, exposed to a clear sky, fell to 35 degrees; but another thermometer, within a few yards of the preceding, but with the radiation of the rays of heat from the grass checked by no other covering than a cambric pocket handkerchief, declined no lower than 42 degrees. No difference of result occurs, whether the radiating surface be parallel or perpendicular to the horizon; for when the mercury in a thermometer hung against an openly exposed wall fell to 38 degrees, another thermometer, against the same wall, but beneath a web of gauze stretched tightly, at a few inches distance, shewed a temperature of 43 degrees.

A knowledge of these facts suggested to H. B. Ker, Esq., of Cheshunt, that, now glass is cheap, peaches, nectarines, and other fruit trees, may be cultivated under a screen made of that material, without any wall or other expensive structure, so as to be within the means of cultivation possessed by those who have only a few shillings to spare upon garden-culture annually. The following is a sketch of the structure Mr. Rivers, the highly intelligent nurseryman and florist of Sawbridgeworth, Herts,



has erected for the purpose.* The posts and rafters being made of larch poles sawed in half, and the frames for the glass of unplanned deal, made without any dovetail joints, but merely as represented in Fig. 2, the cost is very trifling.† The



lower ends of the posts are charred before they are put into the ground, and for a few inches above its surface, to preserve them from decaying, and the whole is to be painted over with gas tar, which Mr. Rivers truly and emphatically describes as "one of the most useful gifts bestowed on modern gardeners;" or, with what is still better, "yellow pine varnish." To increase the warmth and dryness of the structure, we think that the ends and sides might be advantageously closed by means of bundles of furze, reeds, or other similar materials, and the surface of the earth, beneath the screen, covered with coal ashes. It has also been suggested by Mr. Ker that, at the back of the frame supporting the lights, but under

* It ought to be known as "Ker's Protective System."

† It will be seen that the joints are nailed together, and the narrow strip on the bar where the glass rests (called the rebate) is only fastened on by brad-nails. The ends of each bar are sunk into the frame, for the sake of the glass lying level. In the above cut it is drawn as if only nailed on.

their shelter, that is between the 2½ feet posts in Fig. 1, cherries and plums may be trained. "They will get light enough," says Mr. Ker, "and will not stop ventilation. In order to warm the border of the peaches I have put two feet of leaves, having hitherto kept the border dry." Upon this suggestion, Mr. Rivers observes:—"Dung or leaves, not placed under the glass till March, will, I think, do well." Yet we still think coal ashes on the soil under the glass, and leaves or dung over the roots of the trees of the outside border, will be found a more beneficial practice. We think there will be no deficiency of heat under the glass, and that a vigorous movement in the roots, to keep pace with that in the branches, will be found desirable.

Mr. Rivers plants his peach trees in a slanting position, so that their branches lie, without being bent, upon the trellis; to this, which is made of common laths, they may be fastened by means of string, or narrow strips of very thin sheet lead; the latter are readily twisted and untwisted as required, and last for years. Mr. Rivers has planted his trees six feet apart, so that he may be able to remove every alternate tree after three or four years, when he purposes to move them to another trellis twelve feet apart. "No space," as he justly observes in a letter now before us, "is thus lost, and the trellis looks furnished at once." The only magic in doing this, is by a careful attention to root-pruning, in which Mr. Rivers is an adept, so that by keeping the roots within certain bounds the trees may be removed with little injury.

The posts of the frame supporting the glazed lights are six feet apart, and the posts supporting the trellis are three feet apart. The cost of these posts is only about threepence each, and that of each light is stated by Mr. Rivers as follows:—"Each light is 6 feet 8 inches by 3 feet 2½ inches, and contains 2 bars, 2½ inches by 1 inch; 2 sides, 2½ inches by 1 inch; 1 cross bar at bottom, 2½ inches by 1 inch; 1 cross bar at top, 2½ inches by 1 inch; and 1 cross bar in the middle, 2½ inches by 1 inch; this will give somewhere about 1½ cube foot of timber. This, cut for one light, will then be,

	s.	d.
1½ foot of timber, at 1s. 6d.	2	3
3 rows of glass, 20 feet, at 3d.	5	0
Sawing, about	0	9
Labour and nails	1	0
Glazing and putty	0	9
Total	9	9*

"Pine varnish is the cheapest and most durable for rough, unplanned wood; 3d. will be the outside of cost of two coats."

Mr. Rivers employs sheet glass, one foot wide and about two feet long; this brings us to the consideration of the kind of glass most eligible for use by

* Mr. Rivers employs a carpenter permanently, and he can finish the wood-work of five lights in a day.

gardeners, but this must be deferred until our next number.

VERY much pleasure is afforded to us, by being enabled this day to benefit many of our readers by the first of a series of monthly communications on THE MANAGEMENT OF BEES, furnished by J. H. Payne, Esq., of Bury St. Edmunds, author of "The Bee-Keeper's Guide." These communications will be, as much as possible, calendrical; that is, will supply at the end of each month the work required to be attended to by the bee-keeper during the month next coming. In the case of bees, this work is regulated by seasons rather than by months; but each paper written by Mr. Payne will contain information appropriate to the time at which it appears; and will be information from a man of sound judgment, who has been a bee-keeper for upwards of fifty years on the depriving system, with, as his chief motive, a desire to induce cottagers to follow his example. To promote this object, Mr. Payne has distributed some hundreds of tracts, giving instructions on the subject; and has invented the hive—efficient, yet simple, and therefore the more valuable, of which more than one engraving will appear in our columns. "The result," says Mr. Payne, in a letter now before us, "I am happy to say, has been very satisfactory, for many of the cottagers around me are making five, six, and seven pounds (in money) annually, of their honey, and that without destroying the bees. My plan of managing them is, I believe, the most economical of any, and the best adapted for the cottager. My hive, which is called "Payne's Improved Cottage Hive," costs here (Bury St. Edmunds) only 14d.; the price of a swarm is 10s., which, in a tolerable season, will afford from twenty to thirty pounds of honey-comb, after leaving a supply for the bees in the winter, making a profit of, say 25s. for honey, and 20s. for the stock of bees, amounting to 45s.—from an outlay of 11s. 2d.; and this, in about four months."

We need say no more, we should think, to induce many of our readers to become bee-keepers: we recommend every one to do so; and all who become masters of swarms cannot follow better directions than those which will be given by Mr. Payne; for they are, to use his own words, "founded entirely on my own experience, without any speculation as to the Natural History of Bees, but simply information how to obtain the largest quantity of honey at the least possible expense."

THE FRUIT-GARDEN.

GRAFTING.—As many of the readers of THE COTTAGE GARDENER are somewhat inexperienced in this art, it may be well to give some instructions concerning it. We here mean grafting by means of detached scions or shoots, which are generally chosen from the preceding year's wood; although, in some cases, it is expedient to use two years' wood, in addi-

tion, as we shall presently shew. This is a different process from *inarching*, which is sometimes termed *grafting by approach*. In the latter case the scion, or shoot, is not cut away, but left attached to the parent plant until the union between the scion and stock is complete. It is by some considered probable that the idea of grafting was at first suggested by the curious phenomenon we sometimes meet with, of two shoots in the same tree, or of two adjoining trees, forming a perfect junction, so that they become to all appearance one shoot. It appears that the art was known in most remote times, and we find it affirmed that Varro, amongst the ancient Romans, was acquainted with at least twenty different modes of performing it.

The objects of grafting, as bearing on that portion of the gardening world for whom our labours are intended, are as follows:—1st. To increase choice kinds. 2nd. To increase the vigour of kinds over-delicate. 3rd. To reduce the vigour of those which are too gross. 4th. To accelerate the period of fruiting. 5th. To adapt kinds to soil for which they would be unfitted on their own roots. 6th. To renew, or renovate, old kinds.

These six points comprise all that we think it necessary to say on this head for ordinary gardening purposes. We cannot go into a thorough explanation of each of these headings at the present moment, but will return to them, and deal with each as occasion serves; for to understand them completely is to have mastered some very important points in gardening affairs.

We now proceed to give a series of cuts, illustrative of such modes of grafting as may be suitable to the amateur and the cottager; they are all the modes which are absolutely essential in general horticulture. Many others are practised, as we are aware, by our continental neighbours, whose lively imagination frequently leads them to outstrip John Bull in matters of this kind.

The modes we have to notice bear the following titles, viz:—

1. Whip, Splice, or Tongue Grafting.
2. Crown Grafting.
3. Cleft Grafting.
4. Saddle Grafting.
5. Side Grafting.
6. Clunk or Shoulder Grafting.
7. Root Grafting.
8. Peg Grafting.

1. WHIP GRAFTING, called also *splice* and *tongue grafting*.—This is the most common mode of all others, and is that almost universally adopted in our nurseries; and, indeed, when the stock and scion are about equal in size, is perhaps the handiest plan of all. The head of the stock is pruned off at the desired height, and then a slip of bark and wood removed at the upper portion of the stock, with a very clean cut, to fit exactly with a corresponding cut which must be made in the scion. A very small amount of wood must be cut away, and the surface made quite smooth; care must be taken that no dirt be upon the cuts in this, and, indeed, in all the other modes. The scion must now be prepared; this should have at least three or four buds, one of which should, where possible, be at the lower end, to assist in uniting it to the stock. A sloping cut must now be made in the scion; this cut must correspond with that on the stock,



and a slit made to fit in a cleft made in the stock when heading it. This slit serves to maintain the scion steadily in its place until properly fastened, and is more a matter of convenience than anything else. Care must be taken that the scion fits *anything to bark*, on one side at least, for it is not the old or existing portion of wood that forms the union, but a tissue which has to be produced, just as when the sides of a wound have to be reunited. This power exists in the albuminous matter, which lays next the inner bark; and the substance which forms the union, and which is secreted by the returning sap, is termed cambium.

Where the stock and scion disagree in point of size, of course only one side can touch, and great care should be taken in this part of the operation; and, in the case of a young scion on an old tree, some allowance must be made for the ruggedness of the bark.

The scion being thus adjusted, the whole is bound close, but not too tightly, with a shred of bass mat, care being taken that the inner barks coincide. The clay is now applied, in order to keep the parts moist, and some practitioners pile soil over the grafted part, when near enough the ground. In all the modes of grafting it may here be observed, that the *chief ground of success lies in nicely fitting together some corresponding portions of the inner bark of the scion and stock*.

2. Crown, called also *Cleft*, or *Wedge Grafting*.—This is applied to various plants as well as fruits, as, for instance, the rose, cactuses, &c. Vines, also, are frequently grafted by this mode. Like as in whip grafting, it accelerates the union if the bottom of the scion has a bud or two. In the case of the vine it is considered necessary to let the stock grow a little before grafting; care must be taken, however, to keep some growing portions on the stock, above the graft, or severe bleeding would ensue. As the name indicates, a cleft, or division, is made in the stock to receive the scion, which is cut like a wedge; again taking care, in case of inequality of size, to make one side fit *bark to bark*. When the scion and stock are unequal in size, both sides of the scion may be brought to fit by cutting the cleft nearer to one side of the crown than the other. The wound is bound over, as in the other processes, with bast, and covered over with clay, or grafting-wax. The camellia succeeds well when grafted this way; even a single bud will make a plant, provided the stocks are kept in a damp and shady atmosphere for a few weeks after grafting. The stock here, also, should be slightly in advance, that is, should be forwarder in growing than the graft or scion. The best time is just as the sap is rising.



3. CLEFT GRAFTING, as represented in this sketch, is only a kind of crown grafting, and is practised on stocks one or two inches in diameter, and, therefore, too large for whip grafting. Cut or saw off the head of the stock in a sloping form; with a knife or chisel cleave the stock at the top, making the cleft about two inches deep; keep it open by leaving in the chisel; cut the lower end of the scion into the form of a wedge, one inch and a half long, and the side that is to be towards the middle of the stock sloped off to a fine edge; place the bark of the thickest side of the wedge end of the



scion so as to correspond exactly with the bark of the stock; take away the chisel, and then the sides of the stock will pinch and hold fast the scion. Two scions may be inserted, one on each side of the cleft; but in this case the top of the stock must not be cut off sloping. Bast and clay must be put on as in the other modes of grafting.

1. **SADDLE GRAFTING.**—The top of the stock is cut to a wedge shape, and the scion or graft cleft up the middle, and placed astride on the wedge of the stock; hence the name. The binding and claying is performed as in the other modes, care being taken to make at least one of the sides meet *bark to bark*.

A modification of this mode is practised in some of our cider counties, where they do not hesitate to practise it in the middle of summer, when the young wood has become somewhat mature. The scion is chosen smaller than the stock, and is cleft about three inches at the lower end, so that one side is rather thicker than the other. The rind of the stock is then opened on one side, and the thick side of the scion introduced between the bark and wood; the thinner portion is carried astride the stock, and down the opposite side, a slight cutting having been made to receive it, on the principle of making corresponding parts meet. This, though tedious, is a very safe mode of grafting, inasmuch as it presents a greater expanse of albumen for effecting the junction.

5. **SIDE GRAFTING.**—This, in general, is performed on trees on which the top is required to remain, and is well adapted for the insertion of new kinds of pears, or other fruits, on established trees, in order to increase the collection, or to hasten fruit-bearing. It is also adapted to furnish naked portions of old shoots. It is, however, not so safe a mode as some of the others. Little description is needed: the cut will sufficiently explain it.

6. **CHINK or Shoulder Grafting.**—This is not much in use in this country, and, indeed, we see little occasion for its practice. When the stock and scion are equal in size, however, it offers an opportunity of gaining the advantage of an extra amount of albuminous union. The cut will explain it.

7. **ROOT GRAFTING.**—An old practice, but with regard to deciduous fruit trees it offers no particular advantage over the ordinary whip grafting, when performed near to the ground. It is, perhaps, better adapted for very large scions, for in many trees such may be used when two or three inches diameter. When strongly bound they may be soiled over head, merely leaving a hole for the end of the scion to come through, which in this case will rise like a sucker.

8. **PEG GRAFTING.**—This mode is now never prac-

tised in England, and we only insert the annexed engraving because it completes our catalogue of all the known modes. Of these eight modes there are many modifications, but they are all derived from the eight enumerated. Peg grafting, never having been practised by ourselves, we shall only make this extract relative to it: "The scion must be of the exact size of the stock; bore a hole into the centre of the stock, one and a half inch deep; cut the bottom of the scion to fit; the edges of the barks must be very smooth, and fit exactly."

GENERAL OBSERVATIONS.—For ordinary garden purposes, we think the whip, the cleft, the saddle, and the crown, the most eligible modes by far. These may be said to be the rule, the others are merely exceptional cases.

In all these proceedings a few axioms or main principles must be kept steadily in view: of such are the following:—

1st. The scions of deciduous trees should be taken from the parent trees some weeks before the grafting season, and "heeled" (the lower ends put into the soil) in some cool and shady place; this causes the stock to be a little in advance of the graft, as to the rising of the sap, a condition admitted on all hands to be essential.

2nd. Let all the processes be performed with a very clean and exceedingly sharp knife, taking care that nothing, such as dirt or chips, gets between the scion and the stock.

3rd. Let the bandage be applied equally and firmly; not so tight, however, as to cut or bruise the bark. For this reason, *broad* strands of bast are exceedingly eligible.

4th. In selecting grafts be careful in choosing the wood, avoiding, on the one hand, exhausted or bad-barked scions, and, on the other, the immature, watery spray which frequently springs from the old trunks of exhausted or diseased trees.

GRAFTING CLAY, to make.—Take some strong and adhesive loam, approaching to a clayey character, and beat and knead it until of the consistence of soft-soap. Take also some horse droppings, and rub them through a riddle, of half inch mesh, until thoroughly divided. Get some cow manure, the fresher the better, and mix about equal parts of the three; kneading and mixing them until perfectly and uniformly mixed; some persons add a little road serapings to the mass. A vessel with very finely riddled ashes must be kept by the side of the grafter, and after the clay is closed round the scion the hands should be dipped in the ashes; this enables the person who applies the clay to close the whole with a perfect finish. It must be so closed as that no air can possibly enter; and it is well to go over the whole in three or four days afterwards, when, if any have rifted or cracked, they may be closed finally.

GRAFTING WAX.—The following recipe has been recommended by a first-rate authority. Take common sealing-wax, any colour but green, one part; mutton fat, one part; white wax, one part; and honey, one-eighth part. The white wax and the fat are to be first melted, and then the sealing-wax is to be added gradually, in small pieces, the mixture being kept constantly stirred; and, lastly, the honey must be put in just before taking it off the fire. It should be poured hot into paper or tin moulds, to preserve for use as wanted, and be kept slightly stirred till it begins to harden.

R. ERRINGTON.



THE FLOWER-GARDEN.

SMALL VILLA GARDENS.—Near to large towns the land is so valuable for building purposes, that the owners of such property seldom afford much ground for gardening purposes. It is to be lamented that such is the case. If the gardens were larger, the dwellings would be much healthier, and the means of recreation in the open air more ample. Yet even a small garden is greatly to be desired; and it is always a recommendation to a house, if there is "a bit of garden" belonging to it. Gardens of this kind have either a walk in the centre, or on one side, leading up to the door. This walk is mostly paved with flag stones, and this is done, generally, in the worst possible manner; we shall commence, therefore, our gardening instructions, for villa gardens, with describing the best method of laying down the flags.

FLAGGED WALK.—In the first place, take out all the soil under where the walk is to be, and four or six inches wider than the flags. The soil can be used to improve the borders. Then lay a good drain in the centre, and fill up with open rubble of brick ends, or broken stones, or very rough ashes. Fill up the drain to the general level of the ground with this material. Upon this lay a coat of fine gravel or sand, or coal ashes, three inches thick. Beat the whole firmly down with a pavier's beetle, and then have the flags laid down, with lime or cement at the joints. Employ a good mason for this part of the business. The flagged walk will now be completely raised above the level; and, in consequence, will be always clear of moss, and quickly dry after rain. Every one that thinks at all on the subject must perceive that a flagged path, laid in this manner, must be drier and more easily cleaned than one laid in the common way.

BORDERS AND BEDS.—These gardens are generally laid out with a round or oval bed in the centre; a narrow gravel walk, edged with box, round it; and the rest forms a border, in which, as well as in the centre bed, are grown trees, shrubs, and flowers. Now this plan is very simple, and if judiciously planted, and neatly kept, is, perhaps, the best way of arranging such small plots. Some such gardens have a square or round grass-plot, with a border round it; but grass, in such a situation, is exceedingly troublesome. If it is not frequently rolled and mown, it soon becomes thin of grass, mossy, and out of order, besides taking up the room which might be occupied with flowers. For small gardens, gravel walks, with beds and borders edged with box, are more suitable; more easily kept in order; can be managed by the occupier, without so much assistance from a day-gardener; and afford more space for ornamental shrubs and flowers. The great difficulty is to choose, out of the host of good kinds which are now in the nurseries, such as will suit a garden of this class. We shall give a list of trees, shrubs, and flowers, that will furnish a small villa garden, such as are common about large towns. There are, however, many beautiful things that will not thrive near smoky towns. These we reluctantly omit.

Of TREES, we would remark that they are useful in such gardens, to shield off in sultry weather the hot rays of the sun; and, as villas are generally near a highway, they partly shelter the lower growing flowers from the dust, and serve also as a screen from the passers by. Those trees, then, ought to be planted close to the boundary fence, and should be kept pruned in, so as not to hang over either way.

Deciduous (losing their leaves in winter) trees are most proper. The following we conceive to be the best for this purpose:—the Lime-tree, Lalamum, Platanus, or Plane-tree, and Robinia pseudo-acacia, or, as it is commonly called, the Acacia. One of each of those will be sufficient. The price depends upon the size, trees from four to six feet high are 1s. each; ten feet high, 2s. 6d. each.

SHRUBS.—We would by no means have a garden, however small, without some shrubs in it. These may be planted between the trees, and to serve as a division between such gardens. In this class is the queen of flowers—the rose, of which every garden can scarcely have too many; at least, we have no fear that villa gardens will ever be overstocked with this universal favourite. In very smoky parts of towns, such as London, Manchester, Birmingham, &c., we are reluctantly obliged to confess that the rose will not thrive; but at short distances from such towns, it will do moderately well. Shrubs may yet be planted; therefore, if you do not possess any of the following list, procure them without delay. Let your ground be previously prepared by digging in the manner described in our 20th number, then plant your shrubs, giving them, if the weather is dry, a good watering at the roots. Evergreens may be planted till April with success, if they are put in with puddle, that is, earth and water mixed together till of paint-like thickness, in the hole where the tree is to be planted. The shrub is then put into this puddle, and filled up with earth, mixing again with water till the hole is filled up level with the ground. We have removed large evergreens in a hot dry July, and by using puddle they have all succeeded well. Now, as we have proved the great use of puddle in planting large trees and shrubs, it is surely not too much to expect that it will answer as well, or better, for smaller ones.

LIST OF SELECT SHRUBS for a small villa garden:—*Amygdalus pumila flore pleno* (Double Dwarf Almond), three feet, pink. **Arbutus unedo* (Strawberry tree), eight feet, creamy white. **Aucuba japonica* (Japan Aucuba), four feet. *Berberis aquifolium* (Holly-leaved Barberry), two feet, yellow. † *Cotoneaster microphylla* (Small-leaved Cotoneaster), two feet, white. *Daphne Mezereum* (Common Mezereum), two feet, pink. **Erica herbacea* (Dwarf Heath), six inches, pink. There are several other low growing heaths, very pretty and desirable, but, like this, they all require peat earth. **Hex aquifolium variegatis* (Variegated common Holly). The silver and gold-edged varieties are the freest growers, and most handsome. *Lavendula spica* (Lavender), two feet, light blue. **Pæonia montan* (Tree Peony), for the centre bed, three feet, pink. *Prunus lauro-cerasus* (Common Laurel), five feet. **Ribes sanguineum flore pleno*, (Double red-blossomed Currant), three feet, crimson. *Rhododendron ponticum* (Pontic Rose-bay), three feet, purple. *R. Catawbiense* (Catawba Rose-bay), deep pink, two feet. These rhododendrons require peat earth. **Spiræa arifolia* (Aria-leaved Meadow-sweet), three feet, white. **Spartium multiflorum* (Many-flowered white Broom), four feet. **Syringa Persica* (Persian Lilac), four feet, lilac. **Viburnum tinus* (Common Laurastinus), three feet, white. **Weigelea rosea* (Rosey Weigelea), three feet. The above cost from 6d. to 2s. 6d. each.

If the borders will not contain the whole of the above, take those only that are marked with a star.

† This is now made, with some others, into a separate genus, and is called *Mahonia Aquifolium*.

The entire number are well worth growing, either for their flowers, leaves, or fragrance. We should have been glad to have added the Scarlet Thorn and the Weeping Willow, both elegant plants, but for small gardens they are of too spreading a habit; and to prune them into small heads, completely destroys their peculiar character and beauty.

Roses are a distinct class of shrubs, and are deserving a separate notice and list. A row of standard roses, not very tall, on each side of the walk, is very desirable. One standard might be planted in the middle of the bed, with smaller ones round it, and dwarf ones in front, in which case the tree peony must be placed elsewhere. These should not be planted thickly, but at such distances as will allow room for flowers. Some roses may also be planted in the corners of the border, where it is widest.

AS STANDARDS.

Provence or Cabbage Rose, <i>Adri-cane de Cardoville</i> .	Hybrid Provence, <i>Blanche fleur</i> , white.
Moss Roses, <i>Celina</i> , rich crimson.	Of other Classes, <i>Chenedole</i> , large, vivid crimson.
— <i>Crested Moss</i> , bright rose.	— <i>Fulgens</i> , scarlet, fine.
— <i>White Bath</i> , white	— <i>Paul Ferras</i> , pale rose, beautiful.
French or Gallic, <i>Reine de France</i> , rich rosy crimson.	Austrian, Persian yellow, finest yellow.

These cost from 2s. to 2s. 6d. each, and ten standards, as the above, will furnish a small garden sufficiently. Those we have named are select, good, showy kinds.

DWARF ROSES.

Provence, <i>Unique</i> , pure white.	Hybrid Perpetuals, <i>Baronne Provost</i> , pale, superb rose.
Moss, <i>Common</i> , pale rose.	— <i>Clementine Seringe</i> , fresh rose.
— <i>Crimson</i> , rosy crimson,	— <i>Doctor Marx</i> , carmine.
— <i>Lucie</i> , rosy crimson, tinted with purple, and fine, 7s 6d, extra kind, rather dear.	— <i>Duchess of Sutherland</i> , pale rose, magnificent.
Damask, <i>Leda</i> , bluish, edged with cherry.	— <i>Edouard Jesse</i> , dark purple, shaded with crimson.
— <i>Pulchierre</i> , pure white.	— <i>Louis Buonaparte</i> , vermilion, glowing.
White, <i>Angelique</i> , fine bluish.	Bourbon, <i>Cardinal Fesch</i> , fine violet crimson.
White, <i>Madame Campan</i> , vivid bluish.	— <i>Madame Souchet</i> , bluish, tinged with crimson, fine.
French or Gallic, <i>Fleur d'Amour</i> , light crimson.	— <i>Paul Joseph</i> , dark velvet crimson.
Hybrid Provence, <i>Duchesse d'Orlean</i> , wax-like.	— <i>Souvenir de Malmaison</i> , clear flesh, edges bluish, extra fine.
Other Hybrids, <i>Beauty of Biltard</i> , scarlet.	
— <i>Coup d'Hebe</i> , deep pink.	
— <i>Great Western</i> , crimson and purple.	

The above kinds are all very fine. The hybrids thrive best if budded on very dwarf stocks. If the garden is too small to hold the whole number, choose any number you may think sufficient, varying the colours as much as possible. We must, for want of space, defer the selection of flowers till next week.

BIENNIALS.—The weather being so open and mild, biennials may now be removed out of the bed into which they were transplanted last summer. Plant them in the borders where they are to flower, placing the tall growers at the back of the border, and the dwarfier kinds in front. They generally consist of—

TALL GROWERS.—*Anchusa italica* (Italian Bugloss), Canterbury Bells, *Digitalis alba* (White Foxglove), French Honeysuckle, Scarlet Lychnis, and Red Valerian.

DWARF GROWERS—*Catananche* bicolor and *C. cœrulea* (two-coloured and blue *Catananche*), Indian Pinks, Sweet-rocket, Sweet-scabious, Brompton Stocks, Sweet-williams and Wall-flowers.

These are all, or nearly all, old favourites, and are worth cultivating where there is room for them.

We mentioned about our cottage friends forming a kind of society, to exchange flower-roots every spring. We trust they will not lose sight of this friendly design. We are quite sure it would lead to the best feelings amongst them being developed. There is nothing so pleasant as being on social terms with neighbours; and we heartily wish that every village in Great Britain may soon have in each a Cottager's Horticultural and Floricultural Society. As we have seen the good effects of such combinations, we shall endeavour to give some rules shortly, by which such societies may be advantageously governed.

FLORISTS' FLOWERS.

DAHLIAS.—The season has now arrived to look over your stores of this splendid autumnal ornament of the flower garden. Examine the roots well, and all that are alive place in a pit, or frame, or some other place where a gentle heat is at work. Too much heat is very injurious, often rotting the roots just at the part where the buds are, namely, round the old stem. If you have a large stock of roots, it would be better to let them have a frame of two or three lights or more, if necessary, to themselves. The reason for starting them thus early is, to have them strong plants by the time for planting out, and also for propagation purposes, of which we shall say more hereafter.

TULIPS.—Be sure and keep a strict look out after your tulips, especially if you intend to have blooms for exhibition, or even fit for a florist to look at with pleasure. Protect the bed from severe weather, whether frosty, or snowy, or rainy, especially after such mild weather as we have experienced lately. —weather such as the oldest of us can scarcely remember to have seen equalled for mildness in any former February. We may indeed say—"Beware of the ides of March." Watch, therefore, the signs of the change of weather. Cover up every night, and shade from sun during day, to make your pets all safe at all times.

T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

SCARLET GERANIUMS.—The directions given last week for the management of these, after their winter's rest, was meant to apply to those in good preservation, as in ordinary cases; cases may occur, however, where the plants are all but dead, and if this has been brought about by too much damp, they had better be freed from the soil at once, and every dead portion cut out; after that, let them be well dried for two or three days before they are potted again. If the plants, on the other hand, have suffered from over dryness, and are shrivelled up very much, their case is more hopeful, but they must be carefully watered before they are brought into heat; these are the three stages which usually occur, and the damp stage is the worst, and requires a longer time to overcome it; drying the plants well, and to be very sparing of the watering pot, with a very tight compost, and small pots, are the best means to recover them. The very dry ones may be found out by this rule: after cutting off the tops down to the live wood, if the edges of the cut or the cut end of the shoots are contracted much after a day or two, it is a sure sign that their sap is too far gone to be able to break the buds, and therefore they must be watered, but not turned out

of the winter soil. Those that have been wintered without pots will come in under one of these heads, and may be treated accordingly. Of all the plants that can be used for furnishing small gardens, there are none more respectable than scarlet geraniums. You can never have too many of them; a whole bed of them looks as rich as any flower-bed the Queen can have; and for filling up corners anywhere, nothing is better; but I am trespassing on my next door neighbour, and I only meant to say how beautiful they look in boxes outside the windows, or in rustic baskets at each side of the door, and indeed everywhere; and for growing in pots, for such purposes, one of them called Tom Thumb is the best. But their greatest merit is, that they can be kept over the winter as easily as potatoes. When I wrote the first letter in "THE COTTAGE GARDENER," I took a bundle of cuttings of different scarlet geraniums, cut them into foot lengths, and taking all their leaves off, I laid them on a shelf in a room at the top of the house; admitted air to the room; looked over the cuttings twice a week for the next month, they were then in a tolerable dry state for packing up to winter. I rolled them up in rough brown paper, so as that no two of them touched each other, then put them in a box along with lumber. About Christmas, I looked over them, and a good many of them were beginning to rot at both ends, and a few had black spots here and there; the whole of this was cut out, and the cuttings were laid on the shelves again to dry. After ten days the most of them were packed up again, and some were left on the shelves; both lots are now a tolerable sample of very good cuttings, and I have given orders to have them potted this week, but they would do a month hence. Now, if cuttings can be thus kept from October to March, then potted, and be ready to flower next summer, who that has a window, or a single flower-knot or bed, would be at a loss to fill them up at the proper time? to say nothing of the quantities of old plants that may be preserved by good management in a garret. I made this experiment on purpose to enable me to speak positively on the point in these pages, and in order to dispel a very common idea, that only good gardeners can manage to keep these things through the winter: there is no gardening at all required in the matter, only resolution and plain common sense,—an article, by the way, much scarcer than scarlet geraniums. If one was to write about a mysterious expensive process, to do this, that, or the other thing, many would be tempted to try it, who now think it all Greek, or freemasonry, to preserve these beautiful flowers through our winters.

GREENHOUSE CLIMBERS.—A neat little greenhouse without climbers is almost a misfortune; all the plants in it may look healthy and bloom as well as one could wish, and yet if it lacks the gay tracery which a good selection of climbers alone can afford to the practical eye it will produce that indescribable feeling which you have experienced, if ever you had to sleep in a room from which all the furniture had been removed, except the bare skeleton of the bed itself. Climbers are to the greenhouse what the finishing strokes are to a fine painting.

About the end of February, or very early in March, is the proper time to prune and dress up these climbers for the season. The only exception to this rule, that I can recollect now, is when the greenhouse is large enough to contain duplicates of some favourite sort: therefore, when two plants of the same kind are in one house, to treat them alike, in respect to pruning, would be like making a good feast in order to fast afterwards: prune only one of them now, and the

other one six weeks hence. Where climbers are trained up between the front sashes, it is best to run them up to the top of the upright glass with a single stem, and then train them right and left; or up under the rafters, not to allow them to spread so as to intercept the side light. A partial shade along the roof is often of great service to plants on the stages in summer, but no interruption of the side light should ever be allowed. The great fault in the management of climbers is, that they are never pruned close enough, unless they come under the hands of a gardener who has had good experience; and if one has the courage to cut in last year's growth to two or three eyes, two to one but double the quantity of old shoots are left as you generally see vines pruned. If Mr. Errington were to see our out-door vines in Suffolk, he would say of us—no matter what. The majority of the best climbers flower on the current year's growth, like the grape-vine; and all such ought to be cut to within two or three eyes of the old wood annually; unless one or more shoots were wanting, occasionally, to fill up a naked space: but I am writing about such as are of full age and growth. Young plants will not be pruned so close till they fill up their allotted spaces.

Climbers that flower on the last year's wood must have a different treatment. The healthiest of the last year's growth must be selected and left at full length, unless they are very weak, when they ought to be shortened a little, according to their strength, and all the inferior shoots to be cut to two eyes, and from these two-eyed spurs shoots are to proceed this next summer, to flower the following season; also most of the long shoots which bloomed last season are now to be cut back to one or two eyes. When plants thus regularly pruned get too crowded, as most climbers will do under the best treatment, they should never be checked by cutting the roots. The way to manage them is this: those spurs that have been cut to two or three eyes must be thinned, by cutting out one or two here, and another there, all over the plant. Cut them off close by the bark of the old branch, but not now at the spring pruning, because the wounds might injure the whole plant when the growth is slow in the spring; leave them till next May, and when the plants are in full leaf such wounds do no harm; besides, you will then see which of them promise to flower best. The very strong ones will occupy too much room, and the very weak ones will not flower strong enough, therefore cut them off, and leave the intermediate ones as the most likely to flower best. When you want a long shoot of last year's growth, to fill up a space with, as a principal branch that is to remain for years, it is an excellent plan to pick out two-thirds of its buds with the point of your knife, and that may be done at any season; cutting out buds often does away with the necessity of making larger wounds in after years. The spring is not the right time to plant out greenhouse climbers, otherwise I would give a list of the best sorts, but I shall do so before the time arrives. About the middle of May is the best time to turn them out of the pots, and from that to the middle of July will do; but at any other time they are as likely as not to sulk, and remain dormant or stunted, unless in the hands of professed gardeners for a year or two—and the reason seems to be, that the change is too great for them; but when they are in active growth in May, and the growing season is before them, they can hardly fail to go on as if nothing particular had happened to them.

NEW PLANTS.—The charms of novelty are nowhere more irresistible than in the garden, and this often

leads to some blunders; you hear or read of such and such fine plants "coming out," as the phrase goes, and your very fingers itch to possess them, but after laying out a handsome sum to procure them, you soon find that they are no better than they should be. I shall pledge my word, however, that no one who will buy the two plants that I shall name to-day will ever feel a disappointment respecting them. The one is from the far east, and the other from nearly as far to the westward; one is from the island of Chusan, on the coast of China, and is called *Plumbago Larpante*—*Plumbago* means leadwort, and the word is so near plumber, the man who works the lead, that no one can forget that name, at any rate; the second is a complimentary name to Lady Larpent, who was so lucky as to raise this plant first, from seeds sent to her ladyship by a British officer: one of those clever Englishmen who frightened the Chinese almost out of their senses and prejudices. We all know what L.L.D. means, and L.L.L. may stand for Lady Larpent's Leadwort, so that there is very little fear of our forgetting this new name. This new Leadwort, then, is a charming, low, bushy, blue flowering pot plant, that will flower as easily as a fuchsia, from June till the frost comes; and, in less than two years, will be in every cottage garden in the kingdom. Although it sold last August as high as forty-five shillings each plant, it may be had now for 3s 6d, and before the end of next May I should not wonder to see them advertised at nine shillings the long dozen, and all this because it comes from cuttings as easily as the new Verbenas; and no doubt Mr. Appleby will be advising us by and by to buy it in quantities for flower beds, but we are not quite sure yet how it will answer that way.

The second new plant is from Upper California, that wild country lying on the Pacific, where the gold dust has lately been discovered, which they say the Americans are now collecting to pay the "repudiated loans" with. When I saw this most beautiful plant for the first time, last July, I took it to be a new kind of fuchsia, with the flowers turned the wrong way: the idea was sufficiently ridiculous, I own; but it is the best description of the plant, nevertheless; it is not at all unlike a close-growing, small-leaved fuchsia; the flowers, which are of a rosy red colour, looking just like those of a fuchsia, only with their mouths turned upwards. It grows up to two feet or more, and is close and very bushy from the bottom; and although we shall have it in the windows for the first season or two, till the novelty wears off, it is perfectly hardy in our climate; and, more than that, after it is once well established in the ground, no drought that we are accustomed to in England will affect its beauty—for, as is well known, hardly any rain falls in Upper California from May to October; the rainy season there is in winter, when the climate is much warmer than with us, along the coast; but up on the mountains snow lies for some months, and all the plants from hence are hardy with us. The Yellow *Eschscholtzia* and Blue *Nemophylla* come from the same place. The name of this beautiful plant is anything but easy to mind, or even to pronounce, by English tongues: it is *Zauschneria Californica*. This is a German word, and the *au*ch part of it is a strong guttural with them, which a Welshman or Scotchman can easily pronounce, but few English people can; saugh and haugh are two Scotch words which sound exactly as the Germans pronounce the first part of this strange name. The Scotch gardeners will therefore sound this name as if written Saughneria, putting a strong accent on

the e; while the English, who cannot sound this guttural, must change the ch into an x, thus—*Sauxneria*; or follow the old way of pronunciation, as in fuchsia, thus—*Sauchsneria*. This is only domestic pronunciation, but it gives me a good opportunity to say, that it is the duty of our great classical scholars, at the head of botanical literature, to give the explanation and accentuation of every hard word of which they write; how else are we to follow or understand such outlandish words? D. BEATON.

THE KITCHEN-GARDEN.

CELERY.—Numerous are the modes of cultivating this wholesome and useful vegetable; indeed, it is grown to a great extent as a second crop. Sow the seed on a slight hot-bed, or in pans to place in a hot-house, frame, or pit, or some sheltered warm spot, from the middle of February to the middle of April. For years past, at Bilton, we have adopted sowing the seed for our general crop of winter celery the first week in April, on a slight hot-bed, generally where the last asparagus has been forced. We encourage the young plants' growth by waterings of tepid water, and pricking them early on slight hot-beds; and again, afterwards, to maintain a healthy sturdiness and abundance of fibrous roots, we transplant on rich borders, or on well prepared rich soil in some open situation. Then, as the spring sown or planted crops come, such as cauliflowers, peas, spinach, early cabbage, &c., the preparation is immediately made for planting full crops of celery. Our general system is to cast out a shallow trench, 5 feet wide, and, as the soil has been well trenched and manured in winter, we put into it but a moderate quantity of any available well-rotted manure, but preferring cow or pig manure, or the manure from a sheep-fold, or deer paddock, with a portion of charred refuse. This we fork in and incorporate with the soil. In those trenches we plant *crossways*, six plants in a row, and the rows 18 inches apart—in order to secure a convenient and ready means of hoeing, watering, and applying the earth for blanching, without treading amongst the plants. By this means, a large crop of celery, of good quality, is secured on a small space of ground, with moderate expense in the whole management. Besides, it is so easily and moderately secured from the consequences of a severe winter, by the application of a little fern, straw, or any similar material, applied on each side of the ridge, which it will then have become, by earthings up to blanch.

The following is another system we adopt, by which we obtain heavy crops of excellent celery:—At this season of the year, as soon as our Brussels sprout crop is past, which we consider is as soon as the sprouts begin to burst and fly open, we pull them up, mark out our 5 feet bed, cast out the earth on each side to the depth of 15 inches or thereabouts, and into this we cast the stumps of the Brussels sprouts, and any other vegetable refuse, sweepings, rakings, &c. On to this we wheel the worn-out fermenting materials from the sea-kale, to the depth of 10 inches or one foot, if it can be spared; casting over it, as we proceed, about 6 inches of the soil which had been thrown out of the trench, and leaving the other portion to form a shelter for an

EARLY POTATO CROP.—The sets for this we take care to have already prepared, with sprouts vegetated to a length of 3 or 4 inches, planting them 15 inches from row to row, and about half that distance apart

from each other in the row. Some poles or saw-pit scantlings are placed across, and a slight covering or protection of some kind is contrived. By this mode, an abundant crop of early potatoes is obtained to succeed the frame; and a good preparation is also secured for a trench of celery.

To amateurs and cottagers, to whom ground is of consequence, and where it is intended to make the most of space and time, the two foregoing systems are worthy of consideration.

Single-row trenches of celery require more room; besides the plants in them being more exposed to the influence of frost.

SHELTERING.—Alter so mild and moist a winter season it is not unlikely that we may, as spring advances, get cutting weather; it is, therefore, advisable to look a little to the protection of young and fresh-planted vegetables, by the application of a little saw-dust, or other dry dusty material, more particularly about the shanks of young *lettuces*, *peas*, *cauliflowers*, &c. Stick the forward *peas*, and protect the north and north-east ends of the rows well with spruce fir, or other boughs. Draw a little of the lightest mouldy earth up to the shanks of the earliest *beans*.

ROUTINE WORK.—Full crops of *cauliflowers* and *spring cabbages* should be planted, and successions of them sown; a little *broccoli* should also be sown. Continue to plant out successions of *lettuce* plants, and encourage those which have stood the winter by hoeing and surface-stirring often. A full crop of *parsley* should be sown; soot and charred vegetable refuse are famous manures applied to encourage its vigorous growth.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING.

So numerous and so pressing are the objects belonging to this period above all others during the year, that we scarcely know at what point to begin.

In the first place, a few words on

THE POTATO.—There can be no doubt that, on the whole, the condition of the potato has amended in regard to disease; such is our impression—backed, we believe, by facts in the aggregate. We therefore say, do not by any means give up this crop, but plant freely. As, however, the cottager and allotment holder can by no means afford to lose even one crop, it may be necessary, under present circumstances, to pursue a system of mixed cropping, as advised in our previous supplemental number. Some caution is now necessary to the cottager in this respect; and, as a vast amount of information, from various parts of the kingdom, has come to hand as to the progress of the disease, we would fain attempt to place the results in so compact a form as to be of use off-hand to the allotment cultivator.

“Much cry and little wool” is an old saying; it applies to the potato case most aptly. Nevertheless, the numerous investigations and experiments which have been carried on over the kingdom have not been without their use. They have left an impress behind them, out of which a few strong facts may be gleaned by those who, being thoroughly versed in vegetable culture to begin with, can appreciate the relative value of the facts in question. If, then, there be anything determined with regard to recovering the potato out of its present precarious position,

such may be classed, we think, under the following maxims:—

- 1st. Careful preservation of the seed.
- 2nd. Planting in fresh soil without manure.
- 3rd. Very early planting.
- 4th. Judicious selection of kinds.

We now proceed to advise on each of these heads.

1. *Careful Preservation of the Seed*.—Although the time seems past to advise on this head, yet, as it bears on the whole subject, we must indulge in a few remarks. Fermentation or heating in hogs or pits, whether or not the original cause of the disease, is very destructive, and at least provocative of disease of some kind. Such is, moreover, the cause of the seed sprouting much earlier than it should; when the best buds, of course, get rubbed away or otherwise damaged. We, therefore, say, reject all seed which has been thus injuriously treated.

2. *Plant in Fresh Soil without Manure*.—This needs little comment; the world is pretty well persuaded on this head. Indeed, such, with sensible cultivators, was a maxim before the disease commenced. What we urge, however, is, that where a choice of ground offers, those which are termed “maiden soils,” and unmanured, should be chosen. Manures, if not one of the circumstances helping originally to induce the disease, have been, beyond all question, fierce aggravators of it.

3. *Very Early Planting*.—The Horticultural Society of London has had evidence on this head from hundreds of persons, condensed into very narrow tables; by which it appears that autumn planting, when rightly carried out, is by no means to be condemned; and that January and February are far superior to March, April, or May. Indeed, planting in the last-named months, under existing circumstances, is absurd. Those who do so must be totally unobservant of what has been passing during the last four or five years. We would, therefore, advise the cottager to plant every one he intends, whether of late or early kinds, *immediately*; not to lose a day, if possible. One caution is necessary; and that is, to plant at this early period a couple of inches deeper than usual; not for fear of their frosting, but in order that they may not thrust their heads through the ground too soon, which they may do if shallow. Whoever plants with the idea of having them *above ground* earlier than their neighbour will be mistaken. None are safe which appear before the last week of April, or, indeed, nearly the second week in May.

4. *Judicious Selection of Seed*.—For the earliest, nothing exceeds the Ash-leaved Kidney. It is of no use planting them, however, if the first sprout has been rubbed off. The Kemps, the Radicals, &c., are capital; also the Forty-folds. For keeping purposes, some of the second forward Pink Eyes may be chosen, but on no account plant any of the Old Reds, of the Red Apple class. Every district, however, has kinds peculiar to it; and it is well to adhere to those which have hitherto proved successful. By referring to our diagram scheme of culture, at page 184, of Jan. 25th, it will be seen that one division is for winter potatoes, without manure. We there suggested that the early kinds might be grown on slopes or borders. This plot, however, might be made to contain both early and late, alternately; first one kind, and then the other. In this case, the rows may be closer together. Eighteen or twenty inches would suffice this way, whereas nearly thirty would be necessary when all are late kinds. Thus, Kidneys could be taken up, and part sold, about the middle of June, leaving a

crop of keeping Pink Eyes for winter use; and if the Ash-leaved Kidneys were set in February, six inches deep, never soiled or earthed up, but only hoed through, and the Pink Eyes set the early part of March, eight inches deep, the latter would not have spread to their full extent when the Kidneys were taken up; after which, the Pink Eyes would enjoy abundance of room. This plan we have often practised, and can recommend. The rows where the Kidneys grow would then do well for some forward kale plants, or the Thousand-headed Cabbage, of which more by-and-by. It ought to be more generally known, that *sowing or earthing up early potatoes always throws them a fortnight later*. Gardeners who grow them in frames know this well.

KEEPING WINTER ROOTS.—As the time is at hand to sow most of these, we hope to render some service by offering a few remarks on each; remarks founded on long experience and close observation. We refer to the carrot, the Swede, the parsnip, the mangold-wurtzel, and the Jerusalem artichoke. The order in which they stand pretty nearly indicates the preference which is given them by the cottager; we shall, however, have to take another view of the affair, viz., which is most profitable to the cow and pig?

THE CARROT.—There are three very profitable kinds adapted to small holders, viz., the Horn, the Green-top or James's, and the Altringham. The White Belgian we think better adapted for the farm. The Horn, above all others, is most eligible for general purposes, as it forms its root so early. This carrot may, therefore, be sown at any period from the end of January to the middle of July. Whenever any of our readers have a small bed which they do not know what to crop with during that period, let them sow Horn carrots, we say. The Horn will grow six times closer together than the larger carrot, and is, therefore, one of the most profitable crops in existence; for when sown very early, they will be in use by the beginning of May, and the thrifty housewife may pull a good bunch every day, if necessary, for six weeks, and leave a nice regular crop to ripen afterwards. As the season advances, however, they must be sown a little thinner, or they would run too much to top. The Horn, therefore, will come under the bed culture; the Altringham and Green-top may go in drills in the other compartment. The only drawback in the culture of the carrot is its liability to the grub; and were it not that our cottiers are in general predisposed to this root more than to any of the others, we should feel in duty bound to place them in a second-rate position. Their feeding qualities are very considerable, as is proved by their analysis, as well as their known effects in practice. They can never be given wrong to cows in milk, or feeding; for swine, we cannot say that we have derived the same amount of benefit as from the parsnip or the mangold; the latter of which, indeed, we have used in the main for the last fifteen years. Let it be remembered that, whatever manure may be considered necessary for the carrot, it should be dug down deep. Not a particle should be nearer the surface than eight inches for the larger kinds; below that, it matters not how good the soil is made; manure near the surface will cause them to fork and grow rubbishy. The Horn delights in a rich black humus, or old vegetable soil: the depth need not be more than eight inches. The Horn, therefore, is peculiarly eligible for shallow soils, where, indeed, the Altringham would never succeed.

THE PARSNIP.—We pass by the Swede, which

comes next in order, perceiving that our space will not permit us to go into the various bearings of the whole of the roots; we therefore proceed with those which demand immediate attention. Parsnips require to be sown early; the mangold and Swedes will do in the middle of April. Of all the roots adapted to the cottager, or, in fact, any one who keeps pigs, and perhaps a cow, we know of none which can excel the Guernsey parsnip. In recommending this useful root, however, as well as the others, we would advise all parties to consider not only the amount of produce, as related to quality, but the character of the soil. Thus, a thin, clayey soil would, with some manure and plenty of culture, be best in Swedes or the Orange Globe mangold; the carrot is here out of the question, or nearly so. On a deep loam, somewhat adhesive, but well drained, all but the carrot would be highly profitable; whilst on deep, mellow, sandy soils, the carrot, provided the grub does not make his appearance, would, perhaps, excel all the other roots. Our advice, consequently, is—*be sure to suit your crop to the soil*, for quarter or half-acre men may not indulge in speculative matters. A deep and rather nutritious or greasy loam is the soil for the parsnip, and it is known to thrive exceedingly in chalky loams, but these are not in everybody's hands. Parsnips should be sown in drills at the end of February or beginning of March. The drills must be half a yard apart, and the plants singled out to about six inches in the row. Whatever manure is used, it should be placed out of all contact with the upper portion of the roots, as—like the carrot—the descending tap root, on which the amount of produce depends, will, in the event of its coming to the manure near the surface, branch off into innumerable fibres. This useful root has the merit of resisting a very severe winter, if left in the ground; indeed, we have kept them for years in this way.

THE JERUSALEM ARTICHOKE.—We must endeavour to say a few words about this singular root, for it is planting time. We would certainly not plant these where the carrot, the Swede, the mangold, and the parsnip thrive, inasmuch as the produce, both in quality and quantity, is decidedly superior in the latter roots. Nevertheless, on inferior soils, and in nooks or corners, the Jerusalem artichoke is a cottager's root. Swine eat them most greedily, when once they are accustomed to them, and their huge tops are capable of adding much to the compost-yard. They do not require any particular culture; they need much room when planted whole. The best plan is, we think, to cut them into single eyes, of which every tuber contains many. By this course they may be set much thicker. We succeed well in this way at thirty inches between the rows, and sixteen inches between the sets in the rows.

We must now pass on to other business peculiar to the season. On referring to our diagram, at page 181, it will be found that we have disposed, for the present, of compartments Nos. 1 and 2. Let us see what can be done in the other two divisions. In the bed culture, one of the first things is to sow a good bed or two of the *Horn carrot*: if the soil is poor, it must have some very old manure and a little soot, with a slight sprinkling of salt, or any charred materials may be strewn over it, and the whole well dug a common spade's depth. Another bed or two for *onions* must be prepared: if any fresh manure is used, it should be dug in deep; and here, again, we would add the salt and soot mixture. The carrot beds may be raised above the ground-level four

inches, and the onions twice that height. This causes the crop to ripen earlier by a couple of weeks, and that couple of weeks is most important, as we shall plant a thick crop of coleworts on their ground at the end of August. Let the onion seed be sown when the ground is very dry, and the beds trod as hard as the human foot can make them. A few *radish* seeds may be sprinkled with the carrots, and some *Paris eos Lettuce*, and *brown Dutch cabbage lettuce*, amongst the onions. These will be handy to transplant, when strong enough. A small bed of *spinach* may be immediately sown, the seed being soaked in lukewarm water for six hours previously. The spinach, however, had better go to the division No. 1, as No. 3 ought to be wholly occupied with such things as the Horn carrot—in successional sowings, onions, or other useful keeping roots, which are best under bed culture. In No. 4, a bed should be sown directly with *green-kale*, *savoy*s, *Brussels sprouts*, *matchless cabbage*, and the *thousand-headed cabbage*. These will all be wanted in due course. A pinch of *leek* seed, also, at some end. If the cottager likes *broccoli*, he may sow a little of the Willcove, and Melville's superior late white, for next March and April; the autumn and winter broccolis must not go in for a month yet. Above all, let plenty of the GREEN-KALE be provided; these are invaluable for either man or beast.

Of course the sowing of *peas* and *beans* will proceed according to former directions. As soon as these things are completed, the cottager should pay every attention to his *Swede* and *mangold* plots, whenever breathing time occurs: for, in another fortnight, the spring weeds will require attacking; and shortly on the heels of these, the young rising crops will require constantly weeding or hoeing. If any curled kale, or Brussels sprouts, at this period, stand in the way of a well-planned scheme of crops, they may be dug up with a ball of soil, and "heeled," or placed very thick together, on any spare portion of the miscellaneous division: here they will yield sprouts for some time.

EARLY YORK CABBAGE.—Under this head we class the early Hope, the Matchless, the Nonpareil, &c., which are, for the most part, improved Yorks. We would wish to point here to the great eligibility of these for introducing, at any time, between standing crops. A bed should always be sown in the end of *February*, another bed in the early part of *June*, and a third in the end of *July*, or beginning of *August*. If the cottager does not want them, he can dispose of them to his neighbours, or perhaps exchange them for something else. This tribe of cabbages may at all times be planted within nine inches of each other—provided they are not intended to stand for sprouts. The cabbage plants which were planted out in September or October should now have the hoe plied through them, drawing a little soil to their stems. If any have been "pricked out," or are still in late seed-heads, they should forthwith be planted out on some spare bit in the miscellaneous section; or they may be introduced in any other but the root portion, if to spare.

Pigs.—A cottager with nearly half an acre of ground will, of course, feed a good hog or two; and as he can scarcely afford to keep a breeding sow, this is a good time to purchase a good store or two. The prick-eared breeds are by far the best, or a cross between the Berkshire and China. A couple may be purchased, at our spring fairs, for something over a sovereign; and if they are spayed, and not hide-bound, and, moreover, possess some length of

carcase, with a well-set pair of shoulders, he may look to kill one, in the early part of October, weighing at least a dozen stones; and another in the end of February, weighing, perhaps, sixteen stones. To do this, however, he must have plenty of the roots before alluded to, and purchase a little Indian corn-meal, which, in the present state of affairs, is, perhaps, the most economical. A spayed sow, which has had only one litter of pigs, is the thing for a cottager, and, indeed, for anybody to purchase: these are not to be had every day. It is astonishing how soon a sow of this character is fattened, if it can be obtained about the end of August, when plenty of garden refuse comes to hand.

We need hardly remark, that swine require to be kept as clean as other animals; their skin is, in like manner, sensitive, as is evidenced by their rubbing against posts or walls, in order to dislodge the dirt they have accidentally or stupidly accumulated.

THE Cow.—Those who have land enough for a cow, as well as swine, may esteem themselves as exceedingly fortunate. There are a few points we would here advert to concerning this most useful of all animals. Those who keep but one are too often tempted to milk her to within a near period of her calving. This is loss in the end. We think that nearly eight weeks of rest should be allowed in the average of cases; and the drying off is easily accomplished by natural means, without recourse to drinks. A change from good hay to straw, and the withholding of all roots—corn, of course, out of the question—will soon begin to effect this object. After this, very ordinary food will suffice, provided the cow is guarded from inclement seasons. It has been stated by very good authorities, that the relative value of hay, and the various roots, seeds, &c., is about as follows:—1 cwt. of good hay is about equal to 4 cwt. of parsnips, $4\frac{1}{2}$ cwt. carrots, 5 cwt. Swedes, 5 cwt. mangold, 7 cwt. common turnips; also one part linseed is equal to ten of green food in general; and one of good oat straw is equal to three of ordinary green food.

Such statements must, however, be received with caution, and re-examined; so much depends on the purpose for which they are required. In all these matters, it must be remembered that *mere bulk* is a question not to be entirely lost sight of. Hay, in this respect, has an advantage.

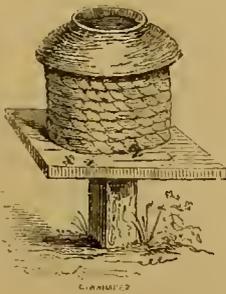
THE BEE-KEEPER'S CALENDAR.—MARCH.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide," &c.

IN page 30 of THE COTTAGE GARDENER, under the title "Bees," I observed two excellent rules: the first, "never kill your bees;" and the second, "never allow them to swarm." Now, to enable the cottager to carry out these very important rules, and to instruct him fully in the management of his bees, will be the chief object of this, and, perhaps, of some future papers. I have, for the last fifty years, never been without six or eight hives, that both by precept and example I might be able to enforce such management; and year by year, I am more fully convinced of the advantages of the system I have pursued, and of its adaptation especially to the cottagers, and indeed to all those who wish to obtain a large supply of the finest honey at the least possible expense and trouble; but, although my first object will be to give instructions to the cottager, I shall, I trust, be able to offer to the amateur a few remarks worthy of his notice.

ASPECT.—I will commence by giving the aspect best suited for the bees to be placed in: I have tried all aspects, and have now no hesitation in saying that the south is the best. Bee-houses of all kinds I very much dislike; many hives are ruined by them; they are expensive in the first place, and they form a shelter for their worst enemies, mice, moths, spiders, &c., and not the least, *dampness*, which is ruinous to them. I would recommend the hives being placed south, or as nearly so as may be convenient; if at all varying from it, give them a little inclination to the east, and be sure to place them so that they have the morning sun; for the honey-gathering for the day usually finishes by two o'clock, therefore an hour in the morning is of much importance to the bees, as well as to their proprietors. Another inconvenience arising from bee-houses is, that several hives being placed upon the same board encourages pilfering, and renders it almost impossible to operate upon one hive without disturbing the whole.

STAND FOR HIVE.—Having, therefore, for these reasons, recommended the abandonment of bee-houses altogether, I would say—place each hive upon a separate board, supported by a single pedestal, four or five inches in diameter—a piece of wood with the bark on does remarkably well—place it firmly in the ground, and about fifteen inches from its surface; upon the top of this post should be nailed firmly a piece of board eight or nine inches square, upon which should be placed the board the hive stands upon, but not nailed to it, so that the hive may be removed whenever required, without disturbing the bees.



Clay or mortar should never be used to fasten the hive to the board; the bees will do that in a much more effectual manner themselves, with a substance they collect from resinous leaves, called propolis. Mortar or clay tends very much to decay the hives; and hives managed on this principle are expected to stand for fifteen or even twenty years. Let the hives be placed about three feet apart from each other, and in a right line. The best covering, as a protection from rain, is a large flat earthen pan (a milk pan), sufficiently large to prevent the drip from falling upon the board. It would in all cases be well to give them the shelter of a wall or fence from the north, but on no account place them close to it, but leave a space of four or five feet, at least, for a path; for, the operations of taking off small hives, glasses, or boxes of honey, are much more conveniently effected at the back than in the front of the hives. It would be well to clean the boards on which the hives stand four times in the year; namely, in January, March, April, and November. January and March are the most important.

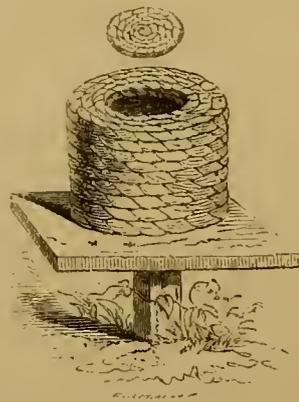
The place where the hives are fixed should be kept clear of weeds; and plants which rise in height

equal to or exceeding the entrance of the hives, should not be suffered to grow near them.

PURCHASING STOCKS.—Should these simple instructions meet the eye of any persons who are wishing to commence bee-keeping, I would say to them, this is the best time to purchase stocks; they may be removed with safety from the middle of February till the middle of March, much better than at any other time; they have passed in safety through the winter, the combs are empty of brood, light of honey, and the removal safe and easy.

In purchasing stocks, the weight alone must not be relied on; a swarm of the preceding year should be selected, and one that contains not less than twelve pounds of honey. The combs must be looked at, and if they are not of a yellow or straw-colour, and if at all approaching to blackness, it is not a swarm of the last year, and must be rejected. The next best time to purchase is May or June, at the time of swarming; but of this hereafter.

HIVES.—With regard to the materials of which hives are made, I believe it to be a matter of indifference whether straw or wood be used, but the facility and economy in the construction of straw hives must always be a recommendation, especially to the cottager. Having, therefore, decided upon the materials for cottagers' hives, their form must now be considered. For straw hives I would recommend the following size:—nine inches deep, and twelve in diameter; straight at the sides, and flat at the top; in shape like a half-bushel measure. A hole should be made in the top four inches in diameter, and a piece of straw-work, like that of which the hive is made, large enough to cover it, must be fastened over the hole, not to fit in, but to cover over it.



It is better to cut a piece out of the hive for an entrance, than to have a groove made in the floor board. The entrance should be two inches wide by one inch high, to which affix a piece of copper or zinc, about six inches long by three inches wide, having a groove to admit two sliding plates, one perforated, and the other having a hole large enough to allow but one bee to come out at a time.



Great advantages arise from this little apparatus; the perforated slider is used to confine the bees to their hive when snow lies upon the ground, which entices them out, and they perish; it is useful, also, when feeding becomes necessary, to exclude all intruders. The other slider is used both in spring and autumn, preventing either robbers or wasps from entering; for three or four bees, with the help of this slider, can guard the entrance more effectually than ten times that number without it.

FEEDING.—I must not close this paper without giving a caution to those who have bees, to examine them, and immediately to feed those that are weak; and a hive that has less than five pounds of honey in it at this time may be considered a weak one. Feeding at the top of the hive is very much the best method, and an excellent apparatus for that purpose was given by the Rev. Mr. Byron, at page 136 of *THE COTTAGE GARDENER*; but in common straw hives it is impossible, and they must be fed at the bottom of the hive. The best kind of food that can be given to bees is honey liquified with a small portion of warm water; but where honey is scarce and dear, an excellent substitute will be found in lump sugar; three pounds of sugar to a pint of water, boiled for two or three minutes, and then mixed with a pound of honey, will make five pounds of excellent food, which the bees appear to like quite as well as honey alone. From the bad honey season last year, the mildness of the present winter, and the probability of a cold spring, a great number of stocks of bees may be expected to perish, except they be watched, and well supplied with suitable food when requiring it. My eyes were gladdened on the 4th instant (February), by seeing my bees, for the first time, seizing upon the little honey and pollen afforded them by the crocus and winter aconite, ten days earlier than I ever before saw them so engaged.

J. H. PAYNE, *Bury St. Edmunds.*

MY FLOWERS.

(No. 18.)

The bright, lively flowers of the clustering hepatica are invaluable now, and form a rich contrast to the crocus, and the few remaining aconites. The hepatica should be allowed to grow in large clumps, and then the effect of its glowing flowers among their dark, ivy-shaped, leaves is beautiful. There are several varieties of this plant; some are of a delicate white, others red, pink, purple, and blue. The pink and blue are the most commonly seen in our gardens; yet we should be repaid for some trouble if we collected all the varieties, for the glow of our early spring borders would then almost rival those of summer, and the foliage of the hepatica is even handsomer and richer than that of summer plants. They like a light, well-drained soil best, but if you place them in a heavy one, mix sand with it round their roots. The hepatica is called by the Canadians, "Snow-flower," as it appears soon after the melting of the snows, and is their first spring flower; in that country it grows wild, and its dark glossy leaves beautify both plain and woodland for many months. In some country gardens there are wild, shrubby, grassy spots, unfit for borders; here we might plant many flowers that would look extremely well, in a half wild state, mixed with the turf and creeping ivy. I once was accustomed to throw much of the refuse of my borders into a place of this kind, because it was out of sight, and I was surprised in the course of time by seeing quite a bed

of fine young sweet-williams springing up; had I allowed them to remain they might perhaps have flowered; and though the bloom would have been weak, yet the effect might have been very pleasing. Hepaticas would look pretty, glittering in these secluded nooks, with many other hardy plants, and would give much agreeable variety to our pleasure grounds, whether they are expensive or not; for the mind always seems more delighted and refreshed with what is *natural* than with the finest effect of art. Where man's hand has been employed there is always a formality, or a something we feel without, perhaps, being quite able to describe it; but only let us break through a garden-hedge into the copse, or the wild heathy common, and what a change comes over us! The eye ranges with unqualified delight from object to object, and the mind rejoices too; all is perfect, and the very leaves of autumn lie on the ground more pleasingly than if they had been scattered by the hand of man. In the grounds of one of the many lovely residences that fringe the bay of Swansea, I remember that the columbine grew wild among the trees of a woodland walk, and also a kind of lilac primrose, that sported among its yellow companions in great abundance; the banks of a narrow streamlet that passed through the grounds were covered with London-pride, another beautiful though simple flower, which I have ever since delighted in, and which is highly ornamental as a wild garden-flower. All these plants seemed native, and so charmingly diversified the scene, that I think we might with much success attempt to naturalize some of our commonest flowers, and also to encourage many wild ones that are very lovely, and would become quite ornamental if treated with a little care.

A few days ago, in a sheltered cottage-garden in Berkshire, I was surprised and charmed with the sight of a blooming almond-tree! It has flowered unusually early, but the winter has been so mild, and the high box hedge that surrounded it so screening, that, being fully open to the south, the little plant put forth its delicate blossoms even before the close of January. It is valuable as an early as well as lovely spring flower; and its blossoms, clothing every twig to its very tip, give it a peculiarly gay and bright appearance. How rapidly it hurries away one's thoughts to distant lands and distant times! but they are times ever present to us in the pages of God's word. It blooms and flourishes still abundantly in Palestine, that once fertile land, that has so long lain, as it were, dead, under the curse of God, but which is at this momentous time beginning to "arise and shine," for the glorious gospel is now preached on the summit of Mount Zion, on the very ruins of the temple. To the simple-minded cottager, who studies most frequently the sacred volume as his only book, the almond tree should be full of interest; it reminds us of the presents sent by Jacob, in those early simple days, to the king of Egypt, as related in the exquisite history of Joseph and his brethren; it reminds us, too, of Aaron's rod, that budded, blossomed, and bore fruit in one night, to mark God's choice among the princes of Israel; and it teaches us, by the vision of Jeremiah, that the Lord "will hasten his word to perform it," however we may think the time delayed, it being the earliest flowering shrub of that fruitful land.

This plant prefers a light, rich soil, and, being a native of the east, it should be placed in the most sheltered spot, that it may bloom early, and that its delicate blossoms may be, as much as possible, protected from cold, cutting winds.

Whatever object is directly connected with Scriptural things is peculiarly dear to the Christian's heart; let, then, all our gardens possess at least one of these lovely memorials of the Holy Land, to lead our thoughts to high and glorious subjects, from nature up to nature's God; from the wonders and beauties of the world to Him who holds it in the hollow of His hand. Our eyes can scarcely glance from heaven to earth without falling upon some object selected by Him to convey a promise, a comfort, a warning, a reproof, a truth, or an instruction; particularly where the operations of the *husbandman* and the *gardener* are chosen to show forth the tenderness of His love and the immensity of His mercy; so that amid the simplest cares and duties of our daily life we are perpetually called upon to raise our thoughts and hearts to Him who loveth us, and whose blessing alone can cause the earth to bring forth her increase.

Let the spade, the pruning knife, the plough, the fan (in our days exchanged for the winnowing-machine)—let the thrashing-floor, the garner, yes, the very wages of the labourer, remind him, and all of us, of those awful and solemn truths so closely connected with our eternal interests; and let us, while storing up our fruits and goods, think that perhaps this night our souls may be required of us, and then what will *these things* profit us?

THE BEE.

BY THE REV. C. A. A. LLOYD.

(Continued from p. 192.)

THE drones, or males, are much larger than the working bee, clumsy in appearance, and very noisy, when upon the wing; they have no power to collect honey, farina, or propolis, or to work in wax, and are sustained wholly by the working bee. On account of the strength of their noise, Purchase, an old writer, concludes that they are males, and the workers females because of their feebler sound. This has since been proved in other ways more decisive. The male eggs pass in twenty-four days into a perfect state. The drones are not able to fly until they have left their cells at least twenty-four hours, as is the case of the workers. They first appear in April and May, and pass with great facility from hive to hive. They go from home only in the middle of the day, and when the sun shines, as is the case of the queen bee. When reposing, they do not enter the cells, but cluster on combs, and sometimes retain this position 18 or 20 hours. They have no baskets on their legs, or stings to defend themselves. After the season of swarming, there is a furious massacre of the drones; the workers thrust their stings into them so deep that they are obliged to turn, as on a pivot, to extricate themselves. During this destruction, the cells of male maggots are torn open, and the embryo drones turned out of the hive. If a hive be deprived of a queen, or if she only lay male eggs, this massacre does not take place in hives of this description. Here, then, is exhibited a counter instinct. Those stocks that soonest destroy their drones will increase greatly in honey. Bruising drones before the hive's mouth will sometimes cause the females to take the work out of your hand, and fall upon them themselves. The constitution of the drone is much more delicate than that of the working bee. If both are placed in vitiated air, so as to render them dead in appearance, and then removed into pure air, the worker will recover, but the drone will not survive this treatment.

THE CELLS.—Lord Brougham makes the following remarks on the architecture of bees:—"Man, when building complicated masonry, requires a plan, tools, plumb-lines, and squares. He cannot trust his hand one moment. Now the bee has no plan except what is in her head, nor any model to guide her hand, nor any tool to work with, except her paw, and her feeler, which is as her eye in doing the work." The cells are built with six equal sides, excepting the uppermost rows, which are built with five sides, the roof being one side of a pentagon. There are only three figures of cells, which are equal and similar without loss of room; these are square, triangular, and hexagonal (six-sided), but the hexagon is the best for insect architecture, being most capacious. It has been calculated that the saving in wax is only $\frac{1}{3}$ compared with the square, and $\frac{1}{3}$ compared with a triangle. Mathematicians have also established the fact, that no form could have been chosen, or arrangement of cells could be made, to save so much room, wax, and work, as the hexagonal. The six lateral pannels of one cell form also the pannels of the adjoining cells. The sides and bottoms are so thin that four are not thicker than common writing paper. Each cell is weak, but is strengthened by those adjoining, and the entrance has a border of wax, at least three-times as thick as the side of the cell, which prevents the mouth from being hexagonal. The bottom of each rests upon three partitions of opposite cells. The cells are not perfectly horizontal, the bottom being the lowest. The diameter of the workers' cells is two and 2-5ths lines, those of the drones $3\frac{1}{2}$ lines. A line is one twelfth of an inch. When a hive of moderate size is full, the wax will weigh about two pounds. The distance between the combs is usually one-third of an inch. The depth of the cells of working bees is half an inch; of drones, three-quarters of an inch.

Wax is, as I have stated, a secretion from the body of the bee, and found under the scales. When combs are wanted, the bees fill their crops with honey, and, retaining it in them, hang together in a cluster from the top of the hive, and remain inactive about 24 hours. During this time the wax is secreted as transparent as talc. No truth has made its way in this world slower than this fact—that wax is made from honey or sugar, and not from farina or bee bread.

PROPOLIS.—Besides honey and farina, bees collect what is called propolis; it is a tenacious, resinous substance, generally of a dull grey colour, gathered from the buds of the alder, poplar, and birch, in early spring, and afterwards from the *tacamahac*, horse-chestnut, and hollyhock. It is soft, and will pull out into threads, is aromatic, and imparts a gold colour to white polished metals. It is used to fasten down hives, and begin combs, and it becomes harder by using and age. Dead toads, and large snails, have been found in hives covered with propolis. This shews great ingenuity on the part of the bees, as they could not remove the toad, and if they had left it, without doing anything, the stench would have destroyed the hive. The bees also use this substance occasionally to narrow the mouths of their hives, as a protection against intruders. "If the part of a tree from which the bark has been removed be painted with a cement composed of bees' wax and turpentine, the bees will carry it away, and use it instead of propolis."—*Knight, Phil. Trans.*, 1807.

HONEY.—Its natural history is imperfect, as stated at the beginning of the lecture. According to Proust, honey consists of two kinds, and they may be separated by mixing honey with spirits of wine, and

pressing the mixture through linen. The liquid part passes through the linen, and the solid honey is left upon it. Honey, mixed with water, readily undergoes vinous fermentation. The ancient Britons made their metheglin with honey, so celebrated by the bards. No person who inspects a bee hive can avoid observing how well the honey is packed up in the comb, to prevent fermentation taking place. Paley asks, "What could the bee do with the honey if she had not the wax; how, at least, would she store it up for the winter?" Again he observes, "The food of bees is the nectar of flowers; a drop of this syrup is lodged deep in the bottom of the corolla, in the recesses of the petals, or down the neck of a monopetalous glove. Into these cells the bee thrusts its long narrow pump, through a cavity of which it sucks up this precious fluid, inaccessible to every other approach. Bees will also pierce and perforate the base of a corolla, which is too deep for their proboscis, and suck out the nectar, as in the common garden bean, columbine, and other flowers; but never the honeysuckle or red-clover, though both so fragrant, and copiously stored for the humble bee, whose proboscis is so very much longer.

(To be continued.)

AN EFFECTUAL METHOD OF PROTECTING TREES, &c., FROM BIRDS.

In the spring of last year I came into possession of a garden well stocked with fruit-trees, and at the same time I found the currant and gooseberry bushes nearly stripped of their buds; some of the young shoots were bared of every bud from the foot to near the points, and I could not get enough currants for a tart in the whole garden. The birds commenced their depredations again in November last, and I lost no time in getting the bushes pruned and covered with white worsted, twisted and triangled in all directions. Since then the birds have not touched a single bud, and the trees now promise well for a crop.

I have four Morello cherries on a wall, and the last summer they had an excellent crop; being on a south-west aspect they escaped the frosty east winds when in bloom. The cherries began to ripen in July, and as soon as they became of a dark red colour the birds attacked them, and the juice was actually to be seen running down the trees. It not being convenient to get nets at the time, I adopted the white worsted, which had the desired effect of preserving the cherries; I stretched it across the trees in lines about a foot apart, and again up and down the trees, and the birds never touched them again the whole season. This is worthy the attention of all, but especially of the cottager who cannot purchase nets. I treated my rows of peas the same when in full pod, twisting worsted up and down the rows on the top twigs of the pea sticks, and they stood till they were ripe for seed. I also find masks an excellent scare-bird, by tying a string between two stakes, and suspending a mask by a string in the middle between them; the least air will turn the face any and all ways; but I think the masks should be painted with oil-colour, as much wet destroys them.

W. K., *Chislehurst*.

[We have heard from many persons that white worsted, if stretched in very numerous lines among bushes, &c., as described by our correspondent, will keep birds away from them. We also have been shewn a mode of protecting the gooseberry-bush's buds in Hertfordshire, which is the most simple and

effectual we have ever seen; Mr. Rivers says it has been practised by the farmers near Sawbridgeworth for some years, and when they adopt any new plan our readers may be assured that it will do. The branches of the bush are drawn together by passing a string round the whole, the same as we do round the leaves of a cos lettuce, when bringing them together for blanching; tied thus, as close as can be together, a little long straw is thrown over the top of the bush, and twisted in among the branches. This is done in November; not a tom-tit, bullfinch, or other bird ever attempts to get into this thatched, thicket-like bush; the straw also protects the buds from the severe weather, and Mr. Rivers stated that the buds thus protected always produce earlier crops than those without such shelter.—*Ed. C. G.*]

TANKS.

THESE structures are of great importance to cottagers and others, for the collection and storing of manures; we therefore insert the following letter from "An owner of cottage allotments," with the answer of "Senilis."

"I should not venture to offer any remarks in regard to your article "Tanks," by Senilis, but that you state him to be one of the best practical gardeners in England, and that he proposes his method with a view to cottage gardening. I have taken some pains to induce cottagers to be careful of their liquid manure; and have come to the conclusion that, considering the ordinary wages of a cottage labourer, it is impossible for him to construct a tank sufficiently trustworthy to hold his liquid. I have induced many of them to dig a pit of a convenient depth and form; puddle the bottom with clay; east in refuse earth, saw-dust, or other rubbish; and, upon that, empty all slops, liquids, or refuse capable of being converted into manure—wheeling out the compost from time to time on to their plot of ground. I grant this to be a slovenly process, but the expense of the tank is an insurmountable objection, not, I think, obviated by Senilis. I consider his proposed dimensions as far too great for the possibility of any cottager's requirements; "four feet deep; six feet may be wide enough, and capacity given by length." (See p. 135.) I presume he would never make the length less, probably rather more. Look at the capacity of a tank of six feet square by four deep; I think no cottager's sewage could ever fill it. I doubt also his mode of construction being much cheaper. There must be bricks and mortar for the arch, and therefore I think the walls might be also constructed nearly as cheaply as by concrete; at the same time, besides that, the average number of localities do not present gravel suitable for making concrete.

I do not see much advantage in his making the walls of his tank with a three-inch batter inwards; I think, after the four walls and the arch over were solidly constructed, there would be a difficulty in throwing out the interior soil. I do not understand how the sewage is to be drawn off by a discharge pipe. This could only be, of course, for the bottom, or near it, so that there must be access to the tank on one side more than four feet below the surface of the soil.

I may have misunderstood some parts of his plan; if so, I should be glad that he would favour your readers with some further observations, as I think it a very important matter if tanks could be cheaply made."

The following is the reply of "Senilis."—

"With reference to the above communication, allow me to remark, that, "a pit of a convenient

depth and form, and to puddle the bottom with clay," takes just as much time to execute as a tank with concrete sides and bottom: that where clay abounds, a mere pit dug into it will hold liquid manure as well as the best tank that could be made: that where a cover is not requisite, any common labourer can execute the work, if he has time and materials: that any dimensions will do, and that it is not necessary to finish off the work at once; the work of a very small tank may run over three months or more, without any detriment to the work itself. The last tank I made holds 6050 gallons, reckoning $6\frac{1}{2}$ gallons to the cube foot, which is near enough for a rough calculation. That tank took us nine weeks to finish, nothing being done to it except at spare times. I cannot say exactly what it cost, but I know the whole expense, except hauling the lime and gravel, was under one-third of two estimates I had for doing it in brick and cement, the brick-work to be nine-inch work. I have made many of such tanks chiefly for rain water, and one of them, now seven years old, will last as long as the new Houses of Parliament, to all appearance. I never allowed frost to effect them, and should not like to trust them to a very hard frost; but a friend who has used them for many years, and to whom I wrote purposely for this communication, says, "if they are but slightly covered, or with a stone coping, the frost would not hurt them."

Any size or arrangement for drains which is applicable for a brick tank is equally so for a concrete one; and, in most instances, the price of a concrete tank may be put down at one-third of that of a brick one. The labour of casting out the soil is the same in both instances; the lime is about twice the quantity for concrete: the rest of the expense is the price of gravel against bricks, and labourers' work in place of the bricklayers; besides the convenience of doing a few hours' work at the concrete as opportunity occurred.

"An owner of cottage allotments" misunderstood the dimensions I gave in my former article. They were meant as the extremes for width and depth; two feet deep, or even less, and three feet wide, would be a good proportion for a small cottage; the length may be anything we want, and that is the best way to give capacity, as formerly stated."

[To the foregoing, we will only add, that the statements of "Senilis" and of his friend, whose letter he quotes, may be implicitly relied upon. They are the head gardeners of establishments distinguished for their horticulture.—Ed. *C. G.*]

NEW PLANTS WORTH CULTIVATING.

SWAMMERDAMIA ANTENNARIA.—Hardy evergreen shrub, from Mount Wellington, in Van Diemen's Land. Easily propagated by cuttings, and grows in any common garden soil.—*Hort. Soc. Journal*, iv. 77.

ROSY LAKE-FLOWER (*Limnæanthus rosca*).—Hardy procumbent (lying on the ground) annual. Brought by Mr. Hartweg, in 1848, from swampy places in "the gold district" of California. Sown in autumn, it flowers in May; sown in spring, it flowers during the summer.—*Ibid.* It is suitable for the banks of ornamental water.

BILBERRY-LEAVED POLYGONUM (*Polygonum vacini-folium*).—This hardy trailer grows in the Himalayah Mountains, at heights varying from 7000 to 13,000 feet above the level of the sea. Sent to England by Capt. W. Munro, in 1845. The flowers are deep pink, and bloom during the whole autumn. Propa-

gated by cuttings; thrives on a good, well-drained loam, and is very suitable for rock-work.—*Ibid.*

ONE-LEAVED CYCLOBOTHTRA (*Cyclobotlura monophylla*).—Hardy bulb, from the Sacramento Mountains, in California, whence it was brought by Mr. Hartweg, in 1848. Flowers bright yellow, two or three on one stem, about four inches high. Increased by offsets, and requires a soil with abundance of peat and sand, where it should be left unmoved.—*Ibid.*

UMBELLED ABRONIA* (*Abronia umbellata*).—This is probably a hardy trailer, or, at most, may be treated like the Verbena. Mr. Hartweg found it on sands near the sea, at Monterey, in California. The flowers violet-coloured, and very sweet, especially in the evening, bloom from June to October. Easily grown from either cuttings or seed, and requiring a rich light soil; it may be treated as an annual.—*Ibid.* It was first discovered in 1823.

CALIFORNIAN BRODICA (*Brodica Californica*).—A hardy bulb, from the neighbourhood of the Sacramento river, in California, whence it was brought by Mr. Hartweg, in 1848. Its blue flowers are blooming from June to October. Easily increased by offsets from the old bulbs; and requires a sandy loam.—*Ibid.*

BEAUTIFUL LISIANTHUS (*Lisianthus pulcher*).—A tall shrub from a limestone district of New Grenada, 7000 or 8000 feet above the level of the sea. It has been bloomed by Messrs. Lucombe and Pince, of Exeter. Its flowers are crimson, and bloom in September. Little is yet known of its best mode of cultivation, but it will probably succeed best in a close greenhouse, in a loose peat soil, well drained by means of pieces of chalk or limestone.—*Botanical Magazine*.

DOTTED-LEAVED MECLEANIA (*Mecleania punctata*).—A low shrub, requiring a warm greenhouse. It was sent from the Andes by Mr. Lobb, in 1848, and has been bloomed by Messrs. Veitch and Son, of Exeter. Its flowers are red, and bloom in November. This, like others of the same genus, may be easily propagated by cuttings, under a bell-glass, with a gentle bottom heat. It thrives in a shallow, well-mixed soil of loam and peat, on a large amount of drainage, as it requires much water whilst growing.—*Ibid.*

PAINTED-FLOWERED LOASA (*Loasa picta*).—A half hardy, if not quite a hardy annual, sent by Mr. Lobb from the Andes. It has been bloomed by Messrs. Veitch, at Exeter. Its flowers are brilliant, white and yellow, with a red eye. It bloomed in a cool frame during December. It should be sown in April, in a frame or pit, to be planted out in the borders at the end of May.—*Ibid.*

JAMESON'S BROWALLIA (*Browallia Jamesonii*).—This is the most beautiful of the genus, and differs from all its kindred, in being an evergreen shrub. It requires the protection of a cold greenhouse, or pit. Mr. Lobb found it in the woods of Molitre, at about 6000 feet elevation, in the north of Peru. It bloomed in Messrs. Veitch and Son's Nursery, at Exeter, in June, 1848. It is propagated by half-ripe cuttings, planted in pots of sand, and plunged in a hot-bed. The soil for rooted plants is a mixture of equal parts sandy loam, leaf-mould, and peat, with good drainage. Its flowers are a bright orange colour.—*Paxton's Magazine of Gardening and Botany*.

GOLDEN TRITONIA (*Tritonia aurea*).—This bulb is a native of the Cape of Good Hope, and was intro-

* Umbel—a bunch of flowers whose stalks all spring from one stem, like the metal arms which extend an umbrella.

duced here in 1846. It blooms in August and September, and is the most beautiful of its genus. Pot the bulbs in autumn in turfy loam, peat, and sand; keep in a frame during winter; and in May, plant them out under a south wall. Place a bell-glass over the bulb, to help to mature it, when the flowering is over.—*Mumud's Botanic Garden.*

NEW FRUITS AND VEGETABLES.

CELERY.—Cole's Superb Dwarf Red (*see Advt.*). Nutt's Champion (*see Advt.*). Seymour's White Champion.

MELON.—Fleming's New Hybrid Persian. This obtained the first prizes at the Chiswick Shows.

PEA.—Early Blue Surprise. Fairbeard's Early Champion of England.

CABBAGE.—King of the Cabbages.

EARLY SPRING-FLOWERING BORDER PLANTS.

A lady resident at Ingham, and some other correspondents, having inquired for a list of plants to make gay and gladsome their borders in early spring, we have prepared the following.

There are very few new things suitable for the purpose, unless some of the new shrubs from China are selected. The following are good, freely flowering plants, that are perennial, and will answer the purpose admirably.

Anemone appennina (Apennine anemone), blue, 4 inches.
 **Adonis vernalis* (Vernal Pheasant's eye), 6 inches, yellow.
Cheiranthus alpinus (Alpine wallflower), 4 inches, yellow.
 **Corydalis nobilis* (Noble Fumitory), 9 inches, yellow.
 **Dodecatheon giganteum* (Giant American Cowslip).
 **Gentiana acuminis* (Stemless Gentian), 4 inches, deep blue.
 **Hepatitis*, double, blue and pink.
Iris persica (Persian Iris), various colours, 4 inches.
Iberis Gibraltarica (Gibraltar Candy turf), 1 foot.
 **Linum flavum* (Yellow flax), 4 inches.
 — *narbonense* (Narbonne), 4 inches, blue.

Orobolus veran (Early Spring Vetch), 6 inches, bluish blue.
 **Phlox veran* (Early Phlox), 4 inches, pink.
 — *divaricata* (Spreading Phlox), blue.
 * — *setacea* (Bristly Phlox), 6 inches, rosy.
 — *subulata* (Oval-shaped Phlox), pink.
 — *nobilis* (White Phlox), 4 inches.
 **Pulmonaria virginica* (Virginian Lung-wort), 9 inches, blue.
Sanguinaria canadensis (Canadian Blood-root), 6 inches, white.
 **Saxifraga oppositifolia* (Opposite Leaved Saxifrage), 3 inches, red.
 **Primrose* (double), various sorts and colours.

There are also some beautiful early flowering hardy bulbs, that are really beautiful, of which we recommend the following for borders:—

Anemone nemorosa plena (double Wood Anemone), 6 inches, white.
 **Cyclamen Cornu* (Round-leaved Sow Bread), 3 inches, red.
Hyacinthus racemosus (Raceme Flowered Hyacinth), 6 inches, blue.
Erythronium densucis (Dog's Tooth Violet), 4 inches, red and white.
 **Muscari moschato* (Musk-smelling Mustard), 9 inches, blue.

Narcissus bicolor, 1 foot, yellow and white.
 * — *bulbocodium* (Hoop petticoat Narcissus), 6 inches, golden yellow.
 — *minor*, 6 inches, yellow.
 **Scilla bifolia* (Two-leaved Squill), 2 inches, blue.
 * — *alba* (White Squill).
 — *peruviana* (Peruvian Squill), 1 foot, blue.
 — *alba* (White Peruvian Squill), 1 foot.
 * — *sibiricus* (Siberian Squill), 6 inches, blue.

These bulbs are lovely early flowers; very hardy, and not half so common as they ought to be. We do not mention snowdrops, crocuses, and winter aconite, as they are common in every garden. A great addition to early flowers might be obtained by keeping a few of the best sorts of annuals in a pit or greenhouse through the winter, and planting them out nearly in flower by the latter end of March or April: such as

**Nemophila insignis*, blue.

**Nemophila maculata*.

The last named is a beautiful new annual from California, having a white ground, and each petal tipped with a brilliant blue spot.

Clarkia pulchella.
 **Lobelia heterophylla.*
Mesembryanthemum (tricolour).
Petunia phoenicea.

**Phlox drummondii.*
 Double Indian Pmk.
 **Rhodanthe manglesii.*
 **Viscaria oculata.*

If your border is extensive, the whole of the above may be planted in it, and will make it very gay for the next four months. If your space is limited, procure only such as are marked with an asterisk (*).

The three following are new hardy handsome shrubs:—*Jasminum nudiflorum* (Naked-flowered Jasmine), yellow; *Porsythia viridissima* (Greenest Forsythia), yellow; *Spiraea prunifolia pleno* (Double Plum-leaved Spiraea), white. All new and pretty, and moderate in price.

MR. NUTT'S MODE OF GROWING CELERY.

I THINK it would not be right for me to say anything respecting the quality of my celery; I had better leave that for others after they have tried it. I now will give a statement of my treatment of this vegetable from the time I sow to the time it is ready to take up.

SOWING.—I sow my seed in pans from the 12th to the 18th of February; covering it as lightly as possible with rich soil, and plunging these under a frame in a gentle hot-bed.

SEEDLING PLANTS.—When these have been up about a week, I give them a little air in the daytime, not allowing them to get drawn. After they have been in their second leaf nine or ten days, I prepare my frames, filling them with new stable litter, and covering this with three inches of rich soil; and when it is near the same heat as the hot frames in which the seedlings have been raised, I begin transplanting. After the seedlings have been planted nearly a week, I give a little air in the frames in the day time, watering the plants very lightly.

PLANTING OUT.—When I prepare for planting, I dig my trench 18 inches deep and 36 inches wide. I manure with pig and horse dung, with horn or bone dust, well mixed together. I lay about 15 inches of this mixture in the trench, and cover it with three inches of rich soil. I plant out near the middle of May, putting the plants 12 inches apart from each other.

When the plants get to a good size, I tie a string loosely round them, so that the wind cannot break the stems of the plants. When I begin watering them, I have horse and pig dung and sulphate of ammonia mixed together for that purpose in a large tub. I never pour any water nearer than 12 inches from the plant. If the weather be dry, I water twice a week, and if wet, three or four times a week with the liquid manure.

EARTHING UP.—I begin earthing when the plants get about 20 inches in height, and do so a little at a time once a fortnight; leaving the earthing up on a slant towards the edge of the trench, so that the water will not run in so as to touch the stems of the plants, as this would cause them to rot. Be careful to remember that sandy soil is the best for earthing up with. This I have found out from experience.

JOHN NUTT, near St. John's Church, Park, Sheffield.

[We would remind our readers that Mr. Nutt is acknowledged to be the grower of the finest celery; and has carried off the best prizes at the Sheffield

Celery Shows. He has obliged us with this detail of his mode of cultivation, by which he grew heads of celery, last year, of the weight of $15\frac{1}{2}$ lbs. the brace (see page 38). He cannot spare any seed until next autumn, but he is ready to forward plants to any one. See *Adet.*—Ed. *C. G.*]

FUCHSIAS.

List of twelve distinct first-rate Fuchsias.

- Beauty Supreme.*—Delicate white waxy tube, corolla fine vermilion.—2s. 6d.
Beauty of Leeds.—Tube and sepals light pink, crimson corolla.—2s. 6d.
Brilliant.—Very large light crimson tube, rich dark crimson corolla.—2s. 6d.
Criterion.—Dark crimson tube, rich deep purple corolla.—2s.
Dr. Smith.—Tube and sepals dark crimson, corolla fine violet purple.—2s.
Elizabeth.—Tube white, slightly tinged with purple, fine rosy purple corolla.—2s.
Jenny Lind.—Tube short, waxy, light pink, corolla rosy red.—2s.
Massena.—Long clear white tube and sepals, corolla lavender.
Nanpareil.—Fine large bright crimson tube, corolla reddish, purple dwarf.—2s.
Queen of the Whites.—Tube white, waxy, slightly tinged with rose, corolla bright rose.—2s.
Scartletina reflexa.—Rich crimson tube, sepals very much reflexed, corolla fine rich purple.—1s. 6d.
Spanish Infanta.—Waxy white tube and sepals, tinged with red, carmine lake corolla.—2s.

Twelve distinct Fuchsias, of good qualities.

- Atrouguinia.*—Dark carmine tube, with long reflexed sepals, crimson corolla.—1s. 6d.
Conqueror.—Bright carmine, dark purple corolla.—1s. 6d.
Corallina.—Fine crimson, dark purple corolla.—1s.
Duchess of Sutherland.—Tube white, with lilac corolla.—1s.
Exoniensis.—Dark crimson tube, and purple corolla.—1s.
Etoile de Versailles (Star of Versailles).—Rich bloody-coloured tube, rich purple corolla.—1s. 6d.
Lu Sylphide.—Corolla lavender rose.—1s.
Napoleon.—Tube pure white, corolla crimson, purple dwarf.—1s.
Nicholsii.—Fine dark carmine tube, rich purple corolla.—1s.
One-in-the-ring.—Waxy white, fine vermilion corolla.—1s.
Purity.—Tube and sepals pure white, corolla a beautiful rose vermilion.—1s.
Ne plus ultra.—Tube bright reddish crimson, sepals well reflexed, rich violet purple corolla.—1s.

PIG-FEEDING IN LANCASHIRE.

The young pigs are taken from their mother at about six or eight weeks old, the price at that age varying from fifteen to twenty shillings each, according to the size. The cottager takes care to provide them with plenty of straw to keep them warm and clean; and if they do not feed well at once, which is often the case, some porridge is made from the wash and leavings of the house, adding a little coarse wheat-flour or oatmeal, and given to them warm for the first few weeks. The refuse of the cottage and garden being then considered sufficient food for them, and the rich often giving the refuse of their houses to the cottager in preference to throwing it away, no further expense is incurred for the pig until the commencement of fattening, and for this purpose oatmeal is far superior to anything that can be given, not only as the most wholesome food for the pig, but also the most profitable to the feeder; in proof of which, a fattened yearling pig should weigh about 460 lbs., which, at $5\frac{3}{4}$ d. per pound, amounts to £11 0s. 5d.; and the usual time for fattening such pig is six weeks, during which time it will consume about 360 lbs. of oatmeal, the present price of which is £1 16s.; and about 300 lbs. of potatoes, which cost at this time 10s. These potatoes are boiled to a pulp, mixed with the oatmeal, and made into balls, with a little wheat bran occasionally added, and plenty of clean water to drink during the whole time. Thus, the expense of feeding the pig is about £2 6s., to which add the 15s. which it cost at first, and deducting £3 1s. from £11 0s. 5d., it leaves a balance of nearly £8 to the cottager. The best season for curing bacon is from November till March.

M. SAUL, *Garstang.*

GOAT KEEPING.

As you recommend cottagers only to hold a rood of ground, would you think it advisable for them to keep a goat? I can assure you, from the experience of four years, that no animal will answer better for "house feeding." When I got mine she had had kids twice, and was parted with for being too mischievous. I have her now so trained that she would not remain out; in fact, last March, when within three weeks of her time, I wished to give her exercise by tethering her out, and she hurt herself in endeavouring to get back to her cot, and cast her kids (1), but still gave milk throughout, but not so much as in the previous year. To this date she is milking a pint daily. She takes a mash morning and evening: a bunch of *kale* and hay tied up tight, and left hanging within her reach, by which she does not waste much; she does not like any of the heading cabbages. I have a few drills of lucerne, which is greedily devoured (this is a most valuable crop if properly cured, superior to any for green feeding; by proper care it gives six cuttings from April to November). The greater the variety of food you can have for goats the better; they will eat turnips, mangold, carrots, parsnips, potatoes, &c. &c., if they are supplied in rotation. Two or three quarts of goats' milk would be a most valuable acquisition to a cottager's family in the day; the expense is only a few shillings at the first; its cot takes up less room than a pig-sty; a dog's chain will keep it secure, and it would make no small addition to the dung-heap. J. M.

[We think a goat, kept as recommended by our correspondent, would be an acquisition to any family not having sufficient conveniences for a cow. We know the excellence and value of the goat's milk, from being supplied by one, for nearly four months, on board ship.—Ed. *C. G.*]

AMERICAN BLIGHT.

By this name is known that insect which appears in the spring and summer upon the stems of our apple-trees, covered with a white, downy substance, so as to look like patches of cotton. It is called American, because introduced upon apple-trees imported from the United States; and is, really, a species of plant-louse, known to entomologists by the scientific name of *Eriosoma lanigera*. We shall give a drawing of it before long. On the subject of destroying this pest, we have been favoured with the following note from W. G. Cherry, Esq., of Buckland, near Leominster:—

"At page 42 of No. 1 you recommend *coal-tar* for destroying American blight; and I think it but right to state that, some years ago, I applied this to 20 young apple-trees infested with the blight, and it totally destroyed them. When the stem was cut through, I found the gas-tar had penetrated nearly through the trees. Common tar would be beneficial, and equally destructive to the American blight. A wash of lime is equally destructive to the blight and beneficial to the trees."

[If our correspondent applied the coal-tar extensively over the stems of his young apple-trees we are not surprised at its killing them; but we have applied it ourselves to the patches of blight only, with perfect destruction to the insect, but no injury to the trees. Common tar, we think, would be equally effectual, but a washing of lime we have tried without success.—Ed. *C. G.*]

HOLLYHOCKS.

IN No. 16 of THE COTTAGE GARDENER is an article on the propagation of hollyhocks, from Mr. Roberts, who states, "that from seed there is no dependence either in the colour or shape of the flowers." I beg to state that, for the last two seasons, I have propagated by seed, and have found them to come correct both in shape and colour, (they are of the Scotch varieties, which are far superior to what have been usually grown.) and, what is more surprising, *all have come double*; two of my friends, to whom I sent some of the seed, have proved them the same. This last season they have ripened but very little seed, although I have noticed the old sorts have ripened seed freely. I am glad to see that the hollyhock is having that attention paid to it which it so richly deserves, and hope that no one will discard the propagation of them by seed, but only bear in mind to purchase seed of good varieties.

R. HICKS, *Harehills Nursery, Leeds.*

SCRAPS.

PIG MANURE.—At a late meeting of the Frome Agricultural Society, Mr. S. Pocock, of Thonstone Farm, made the following statement:—"Well knowing the excellence of pig manure, five years ago I was induced to try it solely for turnips. I tested it against guano and bone dust. The result was quite equal to the guano, and beat the bone dust hollow. My farm is one part clay, and another sand: I found the same result on both. I have also the management of a farm in Hampshire—a poor, thin soil, and there the manure was equally good. I have continued to use it ever since, with the same beneficial results. To carry out my plan, convenient farm buildings are necessary. I have a large dry shed, in which, first of all, I put a layer of dry coal-ashes, about a foot thick and four feet wide, to which the deposit of the pigs is taken, both liquid and solid, and as soon as it begins to ooze out I put on more ashes, and so on till it gets to about four feet in thickness. I then again commence a fresh layer, and so on; after laying some time it is turned two or three times, and then it is fit for drilling. I have put in, this year, 45 acres of turnips, with nothing but this manure, and the result is now open for the inspection of any one who may choose to see it. I find the droppings of three pigs, carefully preserved, to be ample for two acres, and quite equal to three sacks of bone dust per acre. I am not speaking theoretically, but from experience; and I consider, if we can get such valuable manure for nothing but the labour, it will be much better than putting our hands in our pockets and paying 28s. or 30s. for artificial manure."—*Felix Farley's Journal.*

[We entirely coincide with all that Mr. Pocock has said in favour of pig manure, and could add much more from actual experience, if we did not intend to enter more fully upon the subject. We will only say, that whoever has room to keep a pig may always obtain its manure as his clear profit, even under the most unfavourable circumstances of having to buy all its food and the straw for its bed. That manure, too, is one of the best for kitchen-garden crops.—Ed. *C. G.*]

EXPERIMENTS ON POTATO-GROWING.—Mr. R. Thompson, one of the superintendents of the Horticultural Society's garden, at Chiswick, has reported a number

of experiments tried there under his superintendence, having for their object to ascertain the nature of the potato murrain and its prevention. We regret to find that the success has been mostly of a negative character. The experiments chiefly shewing that various suggestions which have been made are useless. We may epitomize the results as follow:—

1. The soundness of any variety in one season is no assurance that it will, next season, be equally exempt from disease.
2. Laying down the haulm of the potato, with its head pointing to the S. W., and covering it with earth to within a few inches of the top, very early in their growth, as proposed by Mr. Meyer, gave seven times more sound potatoes than rows on each side not so earthed up.
3. Seedling potatoes appear as liable to be attacked as the old kinds.
4. Planting on hills, as recommended by Messrs. Hardy and Son, proved disadvantageous.
5. Pinching off half an inch of the tops of the haulm, when from six to nine inches high, and repeating the stopping in ten weeks, as recommended by Dr. Klotzsch, seemed slightly beneficial.
6. Pulling up the haulm, when much decayed, on the 9th of August, and consolidating the earth over the potatoes by beating and rolling it, produced rather less potatoes, "but the quantity diseased was not half so great in the rolled portions as it was in the unrolled."
7. Dusting the leaves with sulphur increased the amount of diseased potatoes.
8. Amongst all the remedies, none appear to have been completely effectual. While the cause of the malady is involved in mystery, any remedial application must be considered as an affair of chance.
9. Mr. Thompson suggests that the cause of the disease may be some change which has taken place in the solar light.—*Horticultural Society's Journal.*

[There is no doubt that such changes do take place; but before the theory can arise above a mere guess at a possibility, two questions must be answered in the affirmative.—*Has any such change occurred?* Is such change inimical to vegetable health?—Ed. *C. G.*]

BEAUTIFUL BRITISH PLANTS.—**CLEMATIS VITALBA.**—*Traveller's Joy.*—A beautiful half shrubby climbing plant, well adapted for covering arbours, old walls, or any other unsightly object in the flower garden. It is extremely interesting even after the flower is gone, because of the beautiful long white feathery awns attached to the fruit. It thrives well in almost any soil or situation, though in its native habitation it appears to luxuriate in a calcareous soil. This plant, though local, is not uncommon in many parts of the country.

ANEMONE PULSATILLA.—*Pasque Flower.*—An interesting herbaceous plant, with doubly pinnated leaves, and—for the size of the plant, which is only three or four inches high—with large violet purple flowers, the out-sides of each bloom having a beautiful silky covering. It thrives in any soil of open texture, and is principally met with in dry open chalky pastures.

ANEMONE NEMEROSA.—*Wood Anemone.*—Who has not in an early spring ramble admired the beautiful leaflets and white or purpleish flowers of this truly

interesting plant? From its thriving so well under the shade and drip of trees, it is desirable for shrubberies, and there is also a double variety, which is an ornament in the most select parterre.

ANEMONE APPENNINA.—*Blue Wood Anemone.*—This plant, though only naturalized in this country, is pretty abundant in some woods and parks in the south. It should find a place in every flower-garden, from its beautiful bright blue flowers appearing at such an early season.

RANUNCULUS FICARIA.—*Pilewort, or Buttercup.*—Of this early harbinger of spring there is a double variety in cultivation, which should be in every select collection; also a single white variety, well worthy the attention of the curious.

RANUNCULUS ACRIS.—*Upright Meadow Crowfoot, or Butterflower.*—Of this plant, which decks our richest pastures with its dazzling yellow flowers, there is also a double variety, locally known as yellow Bachelor's Button. It is of easy cultivation, and a beautiful plant for the edge of a shrubbery.

CALTHA PALUSTRIS.—*Marsh Marigold.*—A splendid plant with large yellow flowers, found adorning our marshes and small watercourses in the early spring months. There is a double variety of this plant, which should be in every collection of early spring flowers.

TROLLIUS EUROPEUS.—*Globe Flower.*—A splendid plant, growing about two feet high, with pinnated five parted cut-leaves, and large globular yellow flowers; found occasionally in moist woods and damp mountain pastures, and makes an excellent plant for a shady border in the flower-garden.

ERANTHIS HYEMALIS.—*Winter Aconite.*—This fine early flowering plant, though only naturalized in England, seems to have taken such possession of the different localities where it is met with, as not to be easily eradicated. It should be grown in every garden, as it is now, January 15th, carpeting the ground with its bright yellow flowers. It thrives under the shade and drip of trees. We have seen it blooming beautifully for two feet up the stems of trees among moss.

HELLEBORUS VIRIDIS.—*Green Hellebore.*—An elegant early blooming plant, with greenish yellow flowers, and digitate stalked leaves, well adapted for the shrubbery edge, and blooming in March. It is found in thickets on a gravelly soil.

AQUILEGIA VULGARIS.—*Columbine.*—An elegant plant of upright habit, found occasionally in woods and thickets, but rather local. It should be grown in every garden, from its sportive character in the colour of the flower, which it produces in every shade and variegation, from the clearest white to the darkest chocolate.—S.—*Durham Advertiser.*

BIOGRAPHICAL MEMOIR OF THE LATE THOMAS GIBBS, ESQ.—Mr. Gibbs, who died on the 27th of January, has been well known to the agricultural world during the last half century, in connexion with the late Board of Agriculture, and the Smithfield Club. He was born at Ampthill, in Bedfordshire, on the 8th of August, 1771, and was the son of Robert Gibbs, of Dunfermline, N.B. Having received his education at the then well-known Asplay School, he became a pupil of the late Wm. Aiton, Esq., of Kew, the celebrated botanist, and author of the "Hortus Kewensis," &c., under whom he studied botany and the sciences of agriculture and horticulture. He then founded the firm of Thomas Gibbs and Co., the seed-merchants, at Half-moon-street, Piccadilly, at the head of which firm he continued for fifty years. In conjunction with the late Lord Somers-

ville, Sir John Sinclair, Sir Joseph Banks, &c., he took a prominent part in the proceedings of the Board of Agriculture, from which institution he received not only its honorary medal for his researches in conducting agricultural experiments, but also the appointment of seedsman to the Board. He was one of the original members of the Smithfield Club, of which he has been for some years past the father. He also co-operated with the present Wm. Aiton, Esq., the late Mr. Dickson, and others, in the establishment of the Horticultural Society of London, and he, for many years, added much to the interest of the meetings of that society, by exhibiting large collections of apples and other fruits grown by him at Ampthill, in the cultivation of which he took much interest. Most of the more important green crops owe their introduction for agricultural cultivation to Mr. Gibbs' experiments and care; and the study of the grasses, until then almost entirely neglected, opened a wide field for his constant attention. It was from the grass garden formed by him in the year 1800 that the one at Woburn Abbey was supplied, and it was on its produce that the late Sir Humphrey Davy made his valuable experiments on the nutritive properties of the various kinds. In 1799, Mr. Gibbs married Sarah Prosser, the youngest daughter of the late Thoswihan Brandreth, Esq., J.P., of Houghton House, Bedfordshire, who survives him, and by whom he had a large family. Most of these died in early life. His eldest son died at the age of 23, being at that early period instrumental, with the late John Frost, Esq., Dr. Bree, and others, in establishing the Medico-Botanical Society of London, and which Society at his death placed a marble tablet to his memory, in the chancel of the parish church of Ampthill. Mr. Gibbs leaves four children, viz., Humphrey Brandreth, the present High Sheriff of Bedfordshire, who took the name of Brandreth in lieu of Gibbs on succeeding his uncle to his mother's family estates; Robert Gibbs, of Compton, Surrey; Rebecca, the wife of John B. Bergne, Esq.; and Ben Thomas Brandreth Gibbs, the Honorary Secretary of the Smithfield Club, and Director of the Royal Agricultural Society of England, and, since his father's retirement, the head of the firm of seed-merchants to that Society. From what Mr. Gibbs accomplished in agricultural improvement, it must be evident that he possessed great perseverance, and still greater talents, and although ill health has for some time prevented his attention to his favourite pursuits—that of agricultural experiments—still the death of one who has in former years done so much to promote the agriculture of the country cannot be regarded in any other light than a national loss.—*Bell's Weekly Messenger.*

TO CORRESPONDENTS.

PLUMS GOOD WHEN SHRIVELLED (*W. H. Chiselhurst*).—The Alibuchari, a purple plum, ripe in September; Coe's late Red, not ripe until late in October; White Imperatrice, ripe in September; Blue Imperatrice and Ickworth Imperatrice, purple, ripe in October; St. Martin's Quetsche, yellow, also ripe in October; Coe's Golden Drop, yellow, ripe end of September. These are all good when shrivelled, and will keep either on the tree or after gathering until late in October.

CROPS FOR NEWLY-PLANTED FRUIT-BORDERS (*R. M. R.*).—On your ten-foot border, next the wall, you may grow all the salads except celery. Spinach, also turnips and strawberries, in beds from annual runners. We grow these and many other things, but we never dig above three inches below the ordinary level. We grow all in beds, elevated many inches above that level. On the six-foot border, not near the wall, you may have similar crops. Such may be in a drill, about half way between the tree-stems and the edgings. Adopt similar culture, however,—no deep digging. Your newly-planted trees will require pruning: you will find advice in our columns. All pruning must be performed within three weeks. Do not tie your espalier branches till the ground settles, or they will become suspended, and receive damage. Walk-making will be handled in due course.

PEAS FOR A GIVEN SPACE (*Cherious*).—The statements at p. 9, and at p. 185, are only apparently inconsistent. We sow Scimitar peas full an inch apart from seed to seed; and then a pint will be enough for 96 feet of rows. Mr. Errington sows them at about three quarters of an inch apart, and then a pint will only be enough for 80 feet. These statements are always only *near* the exact truth, for seed peas differ in size.

RASPBERRIES (*Ibid.*).—Mr. Barnes states that the raspberry canes of last summer's growth should be cut down to the ground in April; and that the canes which succeed them will, if treated as he directs, bear fruit the same autumn. We think that old raspberry plantations must bear similarly to those recently made, if similarly treated, but we will inquire of Mr. Barnes.

EARLY PEA SOWING (*Fusbus, Birmingham*).—It often happens, if the weather which follows immediately after sowing early peas proves cold and wet, that those sown a month later, and followed by genial weather, produce a crop as early. But if the earlier peas have a mild month, after being sown, like the February now closing, they will have pods ready for gathering ten days before those sown a month later. For example, Early Warwick sown on the 14th of December, 1844, were gathered from on May 18th following; but the same pea, sown on the 4th of January, 1845 (21 days later), were not gathered from until May 28th.

ARRANGEMENT OF A SMALL FLOWER-GARDEN (*A Subscriber from the commencement*).—The garden is a parallelogram (oblong square), with a narrow border under the four walls; next to these borders a path, with another path down the middle, and between this and the other paths two long flower-borders. At the further end of the garden, against the centre of the wall, is a summer-house, with a circular bed in front.—You are right: a mass of low evergreens, on either side of your summer-house, would look well from any one of the walks: both sides should be planted with the same kind of plants, say a couple of laurestinus at the back of each corner, and three plants in front of them, the middle one to be of a darker foliage than the two side ones; two variegated box, or hollies, and a low lushy phillera would do; and we think an Irish yew, in the middle of each clump, would relieve and vary the outline of the whole. The borders next to the walls are so narrow that no effect could be produced by cutting or dividing them into shapes. The eight beds on one side the centre we would form into triangles, in place of the squares, and, in planting, fill each triangle with one kind of plant; verbenas and yellow calceolarias would look well that way, and you have an excellent opportunity to contrast the colours properly.

GERANIUM CUTTINGS, PORTUGAL GRAPES, AND HYBRIDIZING (*Un Francus, Cheltenham*).—It is full early yet to make cuttings of your oak-leaf geranium in a room; the second week in March will be time enough. The seedlings of the Portugal grapes will never pay for a tithe of the trouble. If you have space on a south wall, you might *now* plant out those in the cold room; but the plants that are now budding will not stand out till the spring frosts are over. It is questionable if ever they will produce fruit in your room, and those against a wall would not ripen well at Cheltenham. Full directions for hybridizing will be given when plants come more into flower.

CONSTRUCTION OF A PIT (*A. B., Eeeter*).—You say that you are fearful that we cannot, and will not, consider or advise on so many of your petty questions. On the other hand, we consider all your questions of the very greatest importance to a large number of our readers as well as to yourself, therefore we shall endeavour to meet your wishes. First, then, there is no hook, that we know of, which goes into such minute details. The best gardener in England, with the most complete pit and mode of heating, could hardly effect what you propose, viz., "rearing seedlings, and propagating in the spring," in a pit for wintering, calceolarias, cinerarias, verbenas, senecio, &c. &c. A pit for such a purpose would require the lights to be pushed off for a few hours every fine day from the middle of February; and you could hardly venture to turn out the plants till the middle of April. Nothing could be struck or reared, therefore, in such a pit till you could keep it close, after the middle or end of April. We would advise you to build one of Fortune's pits for keeping your plants in, and a one-light division at one end of it for propagation. Tan well dried, then put together under some cover till it heats, and put into this division for bottom-heat, will be an excellent bed for cuttings and seeds, and for growing melons in summer. The size of the fire and fire-place we gave for a small greenhouse will be applicable for your pit; smaller fires can hardly be managed, they choke up with soot so soon. Prices we cannot give. The best glass, and size of glass, we shall remark upon shortly. Have the pit on the surface by all means, and let the fire run round, as we advised for the greenhouse. We will give a plan of Mr. Fortune's pit.

LILIUM LANCIFOLIUM RUBRUM (*H. S. S.*).—You say you planted your bulbs and offsets of this in rough peat, mixed with loam and silver sand, towards the end of October, in No. 16 pots, in which you intend to bloom them; you have protected them from excessive wet and cold, and have lately placed them in a cold dry frame.—This management is perfectly right. *L. L. rubrum* will push earlier than light-coloured ones some seasons, and sometimes it is later. The grand point in their management is to give them as little water as possible in the spring, yet the soil must be kept uniformly moist. We keep our pots of them plunged to the rim in coal-ashes, in a cold pit, with a slight covering of moss; we potted at the same time as you did, and have given *no water* yet. When the mould begins to get dry we water the ashes between the pots liberally, and, with the moss, this will do till late in April, when the roots will be strong enough to stand regular watering.

GLADIOLI (*Un Francus*).—Open the soil with your finger to the bottom of one of the bulbs, and if it is pushing roots give them all a slight watering. The reason of their slow growth is that the roots were probably too dry in the seed-shop; you need have no fears about them. Many people have not yet finished planting the late gladioli, but they ought to be in now. The first week in March will

be time enough to sow your heartsease. Under your circumstances never think you give us trouble.

FUCHSIA SPECTABILIS (*A Subscriber, Wigtownshire*).—There is no fear but you can keep the *fuchsia spectabilis* perfectly safe over the winter without a greenhouse. It will keep as easily as any of the Peruvian fuchsias, in a dry state, from November to March, in a room where frost can be kept from it.

CACTI (*F. Giles*).—Your cacti, which will not bloom, should get no water from October to March. The best thing you can do is to shake them entirely out of the present soil, and replant them in as small pots as you can get the roots into, using from one to two inches of drainage, according to the size of the pots. Make the soil rather light for them, as their old roots cannot be in a healthy state, and add one-third old lime rubbish, or a brick pounded to the size of large peas: water sparingly till you see the top of the shoots turn greener; they are then growing. Water regularly till the end of June, or till they have done growing, then more sparingly; turn them out of doors early in July, and place them in the sun, and house them early in September. A good sprinkling of dissolved bones will benefit your flower-borders.

AUSTRALIAN SEED (*Rev. Jas. Proctor, Norfolk*).—Your 15 varieties of flower-seeds are all hardy, except the balsam and amaranthus. The two latter we shall treat of soon, the other thirteen will do in the open borders, sown from the middle of March to the end of April. The rest of your list are greenhouse plants, with the exception mentioned below. The best place to get them up would be a moderate hot-bed, and, as soon as the seedlings come up, to give them plenty of air, or to remove the pots to a greenhouse. Light sandy loam two parts, and one part sandy peat, is the best compost to sow them in. Use small pots, with an inch of cinder ashes for drainage, and no more water than will keep the surface soil moist. They are not all Australian seed; they were taken to the Sydney Botanic Garden chiefly from the Cape, some also from India, and some from Italy and England! The two *Psidium*, or Guavas, and *Laurus Indica*, require a stove, and are not worth much. *Pinus longifolia* is a tender Indian fir, that will not live out with us. *Pinus halapensis*, a hardy fir, and *Pinus pinca* is the Stone pine of Italy; these two are useful, and will grow if sown in the open border any time in April.

PEA STICKS (*Brookland Gardens*).—We have never yet seen any good substitutes for these, but we are having a string frame made, which we think will do. We will give a drawing of it.

CREEPERS AGAINST A TARBED WALL (*Ibid.*).—The heat accumulated by the black surface of the wall will not be too great for them. We are having some peach walls similarly blackened with coal tar, and anticipate that, with proper screens, we shall have better and earlier fruit; and we are quite sure we shall destroy legions of insects that harboured in the old nail holes and mortar cavities.

MULDERRY-TREE ON A SOUTH WALL (*H. E. M. O.*).—We should think that over luxuriance is the cause of this being unproductive and shedding its fruit. If the leaves are large, and the young wood abundant and gross, lay bare the roots at a distance of three or four feet from the stem, and cut through some of the principal. *Gummo* for gardening purposes shall receive an early notice.

HORSE-RADISH PLANTING (*L. R., Ipswich*).—The horse-radish delights in a deep, rich, moist soil, therefore the side of a ditch is a good situation. You may plant now or in October. The crowns or tops of sticks of horse-radish are best for planting, but the entire stick or root may be cut into lengths, each having two eyes; insert these in a row 18 inches apart. Dig out a trench two feet deep, put the cuttings along the bottom, throw over them a little leaf-mould, or other well-decayed manure, and then return the soil, taking care not to tread upon it, but to leave it as light as possible.

FIG-TREE SUCKERS (*Ibid.*).—If these have roots you may remove them at once. They will require no other particular care than to plant them with their roots spread out, about six inches below the surface where you wish them to remain. Propagating by cuttings produces the most fruitful plants.

PROTECTING PEAS (*J. B.*).—Draw the earth up in a ridge, about six inches high, on each side the rows, and stick a row of fir, or heath, or furze twigs thinly on each side. You have done quite right to stir the ground and sprinkle coal ashes on each side of the rows. We have no doubt by continuing to do so, and giving the protection as directed, you will have a very early crop; it will then be your turn to laugh. Your idea of a substitute for pea-sticks somewhat resembles our own, which we will publish shortly. If you intend to stick your early peas, put in the sticks at once; this will give them additional protection.

BLACK CURRANTS (*Ibid.*).—Your soil being sandy and dry will scarcely be made to produce this fruit without much care. Instead of making a pebbled basin round them to receive a mixture of the house-slops, as you propose, remove the soil for a yard all round, put into its place some heavier soil, and over that some much; cover this over with a little earth, and make a hollow in it to receive the slops. This will probably make your black currants productive, and keep them from shodding their fruit.

HISTORICAL FLOWERS (*Rev. G. I. M., A. R.*).—We are not acquainted with the author of this book, quoted by us in our 17th Number. It may be obtained of Messrs. Orr and Co.

CUCUMBER SOWS (*Home*).—Can any one inform our correspondent of any cucumber shows about to take place this season? Mr. Wild, Tavern-street, Ipswich, will be able to tell you about that of the Ipswich Cucumber Society.

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WEEKLY CALENDAR.

M D	W D	MARCH 1—7, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
1	TH	David. Heath Snail appears	Leek.	47 a 6	38 a 5	0 m 24	6	12 35	60
2	F	Chad. Botanical Society's Meeting.	Mouse-ear Chickweed.	45	40	1 34	7	12 22	61
3	S	Rooks build. [pears.	Golden Fig Marigold.	43	42	2 40	8	12 10	62
4	SUN	2 SUND. IN LENT. Lady-bird ap-	Common Chickweed.	41	43	3 38	9	11 56	63
5	M	Whirligig Beetle appears.	Green Hellebore.	38	45	4 27	10	11 43	64
6	TU	Linn. and Hort. Soc. Meetings.	Daffodil or Lent Lily.	36	47	5 9	11	11 28	65
7	W	Perpetua. Sweet Violet flowers.	Single or early Daffodil.	34	48	5 43	12	11 14	66

ST. DAVID, patron of Wales, a son of a prince of Cardiganshire, was devoted from early life to the priesthood. His labours for the promulgation of Christianity were among the Britons; and he retired, at length to solitude and penance in the Isle of Wight. Here he lived upon the simplest fare, and became famed for his sanctity and learning—acquirements which rendered him a powerful opponent to the heresies of his age; to oppose which he readily came forth from his retirement. Finally, he was raised to the Archbishopric of Caerleon (now St. David's), and died in 544. It is impossible to assign a positive reason for the leek being worn by Welchmen on this day; but St. David, who, like all the early ecclesiastics, was fond of gardening, and the only introducers of new vegetables, may have first made his Welch flock acquainted with this native of the south of Europe.

ST. CHAD, first Bishop of Lichfield, died in 673. It is an old verse:—

"First comes David—next comes Chad,
Then comes the wind as though it were mad."

PERPETUA, a Roman virgin, was martyred by order of the Emperor Severus, in the year 205.

PHENOMENA OF THE SEASON.—"March many weathers" and "March winds" are household proverbs descriptive of this month, which seems to be the battle-time between advancing spring and winter unwillingly retiring. Dryness is the prevailing characteristic of the month, and renders it particularly favourable for the gardener sowing the seeds of the chief out-door plants that are to be either the ornaments of his borders during the year, or his chief harvest at its close. Last week we remarked upon the *warmth* required for the vegetating of those seeds, and we will now observe upon the *moisture*, which is

equally necessary. As no seed will germinate unless a certain degree of heat is present, so also does it require that a certain quantity of water is in contact with its outer skin; and this is required not only to soften this covering, and thus permit the enlargement of the cotyledons (lobes of the seed), always preceding germination, but also to afford that water to the internal components of the seed, without which the chemical changes necessary for the nutriment of the embryo plant which the seed contains will not take place. As water is essential to germination, and only a certain quantity is required for its healthy progress, so it is by no means a matter of indifference what matters that water contains. Until germination has commenced, no liquid but water at common temperatures will pass through the skin of a seed. So soon as germination has commenced, this power possessed by the skin to exclude foreign fluids ceases; but the organs starting into activity, the radicle (young root) and the plumule (young stem) are so delicate, that the weakest solution of any salt is too acrid and offensive for them. It may be noted as a warning to those who employ steep for seed, with the hope of promoting the vigour of the future plant, that they must keep the seed in those steep a very few hours. In forty-eight hours, if the temperature be 60° or more, putrefaction commences, and germination is weakened, or entirely destroyed. H. Vogel, of Munich, has published an extended course of experiments upon this subject, and they fully confirm our opinion, that salts, which do no harm to a plant when it is of robust and advanced growth, are fatal to it at the time of germination. It is impossible to decide the exact amount of moisture most desirable to be in a soil for promoting the healthy germination of any seed, but, in general, it is very small. The seeds of aquatic plants will endure exposure to water only; but a slight dampness in the soil is the state most congenial to the seeds of the great majority of our cultivated plants.

INSECTS.—The Orange Under-Wing (*Brepha Parthenias*)* is a moth found during the whole of this month, but most abundantly towards its close, fly-



ing about the blossoms of willows and salallows, especially in woods. It measures rather more than an inch across its upper wings when fully opened.

MARCH	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
1	Showery.	Rain.	Frosty.	Showery.	Fine.	Cloudy.	Cloudy.	Rain.
Highest & lowest temp.	41°—27°	51°—34°	40°—23°	55°—36°	42°—28°	60°—45°	42°—24°	46°—30°
2	Showery.	Rain.	Frosty.	Showery.	Cloudy.	Fine.	Cloudy.	Rain.
	40°—37°	52°—49°	42°—24°	52°—37°	42°—33°	60°—41°	45°—37°	46°—36°
3	Fine.	Cloudy.	Fine.	Fine.	Frosty.	Cloudy.	Cloudy.	Fine.
	50°—29°	57°—41°	42°—30°	50°—37°	44°—25°	60°—47°	43°—24°	49°—23°
4	Fine.	Cloudy.	Fine.	Rain.	Snow.	Fine.	Fine.	Cloudy.
	46°—33°	48°—29°	41°—18°	41°—28°	45°—19°	52°—40°	43°—37°	48°—32°
5	Rain.	Fine.	Fine.	Frost.	Snow.	Showery.	Showery.	Rain.
	50°—36°	54°—27°	46°—31°	43°—19°	34°—13°	55°—34°	42°—34°	42°—36°
6	Fine.	Fine.	Fine.	Fine.	Frost.	Fine.	Showery.	Fine.
	52°—41°	54°—26°	44°—20°	43°—30°	31°—23°	53°—41°	41°—34°	46°—28°
7	Fine.	Fine.	Cloudy.	Cloudy.	Frosty.	Fine.	Showery.	Fine.
	61°—42°	54°—46°	46°—24°	44°—26°	39°—26°	53°—28°	45°—33°	46°—22°

These are brown, marked with several obscure whitish streaks, but the two streaks furthest from the body are more distinct; between these two streaks and the body is a whitish oval spot, with a dusky margin. The hind, or under, wings are of a dull orange colour, with black margins, and an imperfect streak in the middle, of the same colour. The horns of the males are set with bristles, in a comb form, on both sides (hi-pectinate), but the horns of the females are smooth. The caterpillars appear in May; are yellowish-green, with a blackish line down each side; and are often very destructive to the leaves of poplars and willows.

* *Noctua Parthenias* of some.

If ever there was a self-evident axiom in gardening, it is that glass should intercept as few rays of light as possible from the plants which they protect. It is quite true that there may be periods of the day, season, and growth, when it might be beneficial to intercept the rays of light—that is, to shade the plants; but shading is the exception, and as much light as possible the rule. All the plants requiring us to protect them with glass are from regions with brighter skies and longer days than we enjoy; and to imitate these sources of increased light as much as possible, we must employ squares as large and as

good in quality as we can, within certain limits imposed by price and the risks of breakage. The larger the squares, the fewer bars are required; and the better the quality of the glass, the fewer rays are reflected by it; consequently, these circumstances render the house glazed with glass of good size and quality more light than if a greater number of bars, and glass less transparent, were employed. We believe sheet-glass of the best quality, in panes 2 feet long and 9 inches wide, are those which in practice are found most advantageous.

We are quite aware that such good authorities as

Mr. McIntosh, gardener at Dalkeith Palace; Mr. Spencer, gardener to the Marquis of Lansdowne; Mr. Drewett, gardener to Sir W. Heathcote, and some others of equal merit, are in favour of "the good old plan" of small panes and crown-glass. But, if we examine the instances of injury arising from "the new order of things," we shall find such admissions as these:—"Houses, when glazed with large panes, and overlaps cross-puttied, become, as it were, hermetically sealed, and may be considered as Wardian cases on a gigantic scale." Now, in such houses, no one need be surprised that scorching and blotching occur to the plants within. Similar injuries would occur in such "Wardian cases on a gigantic scale," even if the glass had been inferior, and the panes small.

It is quite evident that, in proportion to the improvement of the light in which our greenhouse and hothouse plants are grown—or, in other words, the nearer we approach to giving them the light of their native skies—so must we similarly approach nearer to an imitation of the freedom of air, and the degree of moisture, the ready evaporation, and the temperature, both to the roots and to the leaves, which they revelled in at home. Not providing, proportionately, these to the increased degree of light, has been the cause of the few cases of injury reported as being owing to the employment of better and larger glass. Its employment entails upon the gardener much more anxiety, and a much greater amount of attention—circumstances which ought to be duly considered by their employers; but they are circumstances no gardener will shrink from who is desirous of all-attainable excellence in plant-culture.

We might fortify our opinion in favour of the better and larger squares of glass, by quoting a long array of first-rate authorities; but we shall content ourselves with the following extracts from letters now before us:—

Mr. Appleby says,—“I am favourable to the use of large squares of sheet-glass, provided the glass is of good quality; that is, perfectly even, without specks or wavy lines on it. Wherever it burns or scorches the leaves of plants, it is the fault of the glass being of indifferent quality. I consider British sheet-glass better than foreign. I should avoid professed cheap dealers in this article. Every builder of hot-houses ought to buy his own glass. I do not think the weight, or thickness, or colour, has anything to do with the scorching quality.”

Mr. Barnes says,—“Respecting sheet glass made use of for horticultural purposes, I have had no practical experience, as we have none of it here. I observed at the large new conservatory at Kew, and at other places, in October last, that the plants were scalded or scorched considerably; but what is that more than was years ago observed where crown or the old-fashioned green glass have been made use of, and where ventilation was insufficient, or had been neglected in due season. By all that I could ever observe in respect to the use of large squares of sheet glass, the real fault does not lie with the glass

itself, but with those who have planned the buildings glazed with them: they being deficient in means for quickly and methodically giving proper ventilation to allow the condensed evaporation to escape; or in those who, where a sufficiency of ventilation convenience is provided, are not expeditious enough in applying it. This is where the real mystery and mischief of the matter lies, depend on it. Let the sun shine of a morning ever so early on a structure of glass, it should have ventilation given previously; and those who are not early enough of a morning for attending to such matters, should, to be on the right side, leave air all night. The stagnated and condensed evaporations confined in those structures are sure to furnish, if not actual scorchings, certainly the origin of disease and vermin. That there is a great difference in the quality and scorching propensity of sheet-glass there can be no doubt; and the same has been well ascertained with other kinds of glass long since; but this is no reason why an invaluable and noble-looking article should be condemned, and considered by some people a scourge on the improvement of horticultural structures. There may be a difference as to scorching effects in respect to various coloured glass, but in this I have but little faith; for, possibly, if glass were coloured to the extent to prevent the scorching effects upon plants, an evil fully as extensive might occur in the obstruction of the natural light, so essential in good culture. The coloured glass so highly spoken of at Kew, as a sure preventive of the scorching effects, has proved as great a failure as any I have seen; and, as that occurred in a dark cloudy summer like the last, what may be expected in future, should we have bright fervent weather for a considerable time together? I may observe, however, that there is more danger of scorching after a long occurrence of dull weather, when the sun makes a sudden fervid appearance, than there is after a bright spring.”

Mr. Errington writes thus,—“I feel tolerably persuaded that the principal failure in regard of the British sheet-glass is owing to the want of a *vastly* increased amount of ventilation in those structures where it is used. I feel little doubt that, when it is free from foci, clear, and uniform, it will supersede all others. One thing in addition: it will probably lead to the general adoption of shades, which will also constitute night-coverings, when these things are sufficiently understood. As to size of squares, it is a matter of convenience.”

The last authority we shall quote is Mr. Beaton, who says,—“The size of glass for plant-houses is merely a matter of fancy, provided you keep above six inches width between the bars, and make the laps of the glass as narrow as possible. The larger the size between the sash-bars—say above 10 inches—the more difficult the readers of *THE COTTAGE GARDENER* will find their plants to manage; but I would put no limits to the length of a pane, in order to get rid of laps; and yet long panes are only safe in fixed roofs. The front glass for a greenhouse, however, need be under no kind of rule: the larger it is the better; even if each sash was in one pane, I think it would be better. Side-light is always agreeable to plants, without any danger to them. It is a great misfortune that some inferior glass has got into circulation, which, without doubt, scorches the foliage; and this scorching, or burning, or scalding, or whatever we may choose to call it, seems to have no reference to the state of ventilation. I believe I have the best proof of this. A large conservatory here has the roof-sashes screwed down as

close as possible; the glass is let into grooves in the sash; and it has a great improvement invented by Mr. Paxton, which renders it still more air-proof; the panes are forty-five inches long, and only six inches wide; the roof a span—that is, with glass on both sides of the ridge. This roof is nearly air proof, with British sheet-glass, 16oz. to the foot; and has been up seven years. Climbers with the thinnest and softest leaves, as those of japonicas, often get in contact with the glass on the roof; others, with the smoothest and most leatherly-textured leaves, as those of the stephanotus, and every degree of texture between the two, come very close to this glass, and also at different distances from it, and not a single leaf has been hurt in this air-proof roof these seven years. But, one afternoon last May, a citron plant on the back wall had a line of scorching across its leaves, about half an inch wide and a yard in length. These leaves were 16 feet from the glass, and grew where a constant ventilation was going on. Therefore, any inferior glass that will burn leaves I think will do so with or without a current of air passing through."

THE FRUIT-GARDEN.

PROTECTING THE BLOSSOMS OF FRUIT TREES is one of the most important duties belonging to this department. The vicissitudes of our climate are so great and so frequent at this period of the year, that, had not the internal organs of the blossom, which appear so delicate and tender, been endued with a very considerable amount of hardihood, and furnished with calyx (flower-cup), and the corolla (blossom), at once their protection and embellishment, little would be the produce. When we take into consideration how little expense is incurred in protecting the blossom of fruits, especially those on walls or trellises, it seems astonishing that matters of this kind are not carried farther; for a little manual labour is the principal part of the affair.

There are various materials used for this purpose, such as canvas, bunting, woollen netting, &c. Many persons use the fronds, or large leaves, of fern, or boughs of trees, such as of the spruce fir, or of the beech or hornbeam.

Canvas.—We have used this material extensively for the last twenty years, and we could never find anything to answer the purpose better, when rightly applied, and preserved with care. As, however, localities differ, and expediency in this, as in many other things, goes before principle, we will make a point of describing the whole of the materials enumerated, with their mode of application. The canvas we allude to is made in many parts of Lancashire, and the character of it much resembles what is known by the name of cheese-cloth, only it is a much thinner and lighter fabric; it is most frequently furnished in widths of nine feet, which is sufficiently deep or wide for the majority of garden walls; it may, however, be obtained of other widths. The price depends on the thickness of the material, but ranges from about three-pence to five-pence per square yard; so that every yard of a wall ten or twelve feet high may be protected for a shilling or less. But, then, it must be remembered that, with due care, it will last for about seven years; so that to cover a yard of walling in this way may, as far as this material is concerned, cost less than two-pence a year. Who would lose a fine crop of peaches, nectarines, apricots, grapes, &c., for the sake of this small outlay? To be at once efficient, and, we may

add, economical in the end, it must be made to draw up and down. We use poles for this purpose, which are generally larch thinnings, being about three inches in diameter at the lower end, and tapering to about a couple of inches at the top. The walls being 10 feet high, our poles are required to be about 11 feet, as they are placed sloping, 16 inches away from the wall at the base, whilst the upper part of the pole is flattened, and fastened to the facing of the coping; the end of the pole is let into the soil an inch or two, in order to steady it. These poles are placed about eight feet apart, and at the bottom of every pole, or rather at a foot above the bottom, an auger-hole is made, and a wooden peg driven in: this peg projects about a foot outwards towards the border, and when the canvas is lowered, in order to admit the sun's rays, the whole body of it rests in a line on these pegs; this preserves it from becoming dirtied, and from liability to rot in continued wet weather. The canvas being required to slide down, a staple becomes necessary at the top of every pole, or, rather, near it on the wall; this, once driven, remaining there permanently. Cords are fastened on the edge of the canvas, opposite to each pole; the ends of these cords are passed through the staples, putting them through the under side of the staple, and bringing them through on the upper; and thus the canvas is made to slide up and down with the utmost ease. To uncover the trees, the canvas is lowered from the top of the wall; and to cover them at night, it is re-drawn up to the top. It is necessary to make a noose in the cord, so that when the canvas is drawn up for the night the noose is merely hung over the wooden peg before described: thus all is safe from the wind, &c. Our practice is to fix up the canvas in the end of February; indeed, this spring we put it on in the first week, the bud being so much advanced. There can be little doubt that very much harm is done to wall trees in early spring by intense sun light, by which the buds are hurried beyond their natural habit. It should be taken into consideration what a vast accumulation of heat takes place on a south wall in the beginning of March; and this, coupled with an extreme amount of dryness in the air, has a tendency to exhaust the juices of the trees faster than the roots can supply fresh sap. We therefore suffer our trees to remain covered the whole day during weather of this extreme character.

Woollen Netting.—This is too well known to need description. It is an excellent material for covering trees in blossom, but is more expensive than the canvas. There is here another consideration bearing on the subject, which is, that covering of some kind frequently becomes necessary in summer to protect fruit from the wasps. Now, woollen netting is much recommended for this purpose, the wasps having an aversion to pass through it, probably on account of the numerous straggling fragments of wool which cross each other in all directions. It is, therefore, a consideration with the proprietor whether he will use one material for both purposes; the only objection to the woollen netting being its cost, at least as far as we are aware, for we have never used this material.

Bunting.—This is much used about the metropolis for protection purposes; and a very good thing it is, when its price is taken into consideration. We have never used it, and can therefore say little about it.

Fronds (Leaves) of the Common Fern.—These are used in some districts where the plant abounds; and a very good covering they make, when of strong growth, obtained at a proper period, and stuck in

properly. Such should be obtained of as luxuriant a character as possible; *should be cut in the end of August*, when solid, but not ripe; as the leaves shed in the latter case with handling, and then their protective character is lost. They should be perfectly dried, and stowed away in layers or bundles in some dry and airy place. In placing them over the tree, it is necessary to complete the pruning and nailing first. They must then be stuck in by the stalk end, with the frond or leafy part downwards; beginning at the bottom of the wall or fence, and continuing upwards to place them in a regular series. They should not be put too thickly; no two need scarcely touch sideways; but the rows should slightly overlap each other, in order to throw off rain or snow. Towards the middle of May they must be removed altogether.

Boughs of Trees.—Of these, the best, according to our practice, is the spruce fir. These have long been recommended for protecting the fig during the winter; for they possess a rather peculiar character in this respect. The spray, or rather the leaves, fall off progressively during the foliation (leafing) of the fig, thus inuring gradually the tender shoots to the light, and to a free circulation of air. Where extensive fir plantations exist, these can generally be obtained during the thinning season; and they should be stuck in (using small fragments) after the manner of the fern.

Beech Spray.—This we should think next in importance to the spruce for protection purposes, as it has the property of retaining its leaves until late in the spring, although a deciduous tree.

The Hornbeam, also, has been used for this purpose, and is a very useful covering; but not quite equal to those before named. In placing these boughs, the same course may be pursued as with regard to the fern, beginning at the bottom of the wall, and placing them thinly. The shoots of trees must not be used of too thick a character, and the ends should be pointed with a knife before sticking them in, or fastening them to the wall. Care should be taken that no loose dangling ends or points flutter in the wind, or they will whip and lash the blossom buds, to their great injury.

We need scarcely add, that the boughs, or rather spray, will have to remain on altogether until finally removed; this, therefore, is an argument for not placing them very thickly; for we have known blossom buds much weakened by their obstructing the light when too thickly applied.

A few words on the management of the canvas or bunting, when made to take off occasionally, may here be acceptable. As before observed, we have always found it good practice to put it on *very early*, in order to somewhat retard the bud, in hopes of a more genial atmosphere with the increasing length of days; and also, in order to enable the bud gradually to unfold itself, according to Nature's own course, which can scarcely be said to be the case when the buds are powerfully excited, after dull and cold weather, by a bright March sun. Besides these arguments, let the amount of *dryness* in the atmosphere thus occasioned be duly considered; and the wonder will be, that our tender fruits do not, at such periods, receive a greater amount of injury still.

Dr. Lindley states, at page 131 of his valuable "Theory of Horticulture," that, "In this country the changes of moisture are said to extend from 1,000, or saturation, to 389, or even so low as 120, under a south wall, for a short space of time,—a state of dryness which is certainly not surpassed by an African harmattan." It will thus be seen that the application of coverings

produces a compound effect. Severe winds are also exceedingly prejudicial to the blossom-buds. The covering or uncovering, therefore, must be conducted with reference to all these extremes. It should, however, never be suffered to remain on altogether for above a couple of days at a time: the removing it for even two or three hours only will prevent the developing bud from becoming weakened. When the trees are actually in blossom, a great amount of sunshine should be permitted; for the various bees and flies which then abound should have free access to the blossoms, as they much facilitate the impregnation. Whilst the blooming process is proceeding, great care should be taken to cover up, whilst the sun is shining on the trees, early in the afternoon—say three to four o'clock. A vast amount of solar (sun's) heat is thus enclosed; and the radiation or departure of it again to the atmosphere, is so much arrested by the covering, that the wall is warmer during the whole of the night than any uncovered walls can possibly be. Some caution is necessary as to the mode of uncovering when the young shoots begin to expand. All the sunlight possible now becomes necessary, in order to elaborate the juices, and preserve a corresponding amount of action between the root and branch.

Towards the middle of May, the canvas, or other covering, must be removed altogether, choosing a mild time, with a gentle south or south-west breeze, and a moist atmosphere, for the operation; and now care must be taken to get the material immediately dried thoroughly, when it may be rolled up, and put away in a dry place. We are aware that some very respectable authorities are against the covering of fruit-trees at all. We must, however, from a long experience, strongly advocate it; indeed, if we could, we would cover every tree and bush in the garden.

PROTECTION OF DWARF FRUIT-TREES, BUSHES, &c.—Where the thinnings of plantations, or of coppices, are available, they can be rendered of much service as protectors to fruit blossom. It was for this reason that we recommended, in an earlier number, the occasional planting of gooseberries in the line of dwarf standard fruit-trees, both in the garden of the amateur and the cottager; for we have repeatedly known a crop saved by means of the overhanging branches, when those totally exposed were destroyed. Such a reserve, therefore, in a small way, becomes very acceptable under these circumstances. We have a great many Flemish pears, trained on what we call table trellises, or, at least, trained horizontally, at about one foot from the surface of the ground. We have, in trying periods, generally stuck boughs of forest trees through those which were most in esteem, and we have found the protection thus afforded worth consideration. Such boughs of beech or spruce as would be large enough to stick marrow-fat peas with, are the sort of things we use, merely pointing the ends, and sticking them down perpendicularly. It must be remembered that our April frosts, which are calculated to injure the blossom, are seldom accompanied with winds; and that, for the most part, such frosts act in a perpendicular direction. The interposition, then, of such branches, placed thin enough to admit the flickering rays of sunshine, serve at once to break cold winds, to intercept the hoar-frost, and to prevent too rapid a radiation.

PRUNING.—At the risk of being tedious, we beg to say that, whether with the amateur or the cottager, all pruning must be closed forthwith, more especially

with fruit-trees, which, in the language of our monetary gentlemen, are "below par" in point of strength.

PLANTING.—What we have urged in regard to pruning may be said of planting, and, we may add, of **GRAFTING.** All these matters must at once be carried out, or twelve months must be lost—a great blank in the gardening history of any person.

MULCHING.—We must again advert to this most important process—so important, indeed, that we think a first-rate system of fruit culture, specially adapted to our British climate, will never be carried on without it. Let the immense benefits of this process to newly-planted trees, also, be taken into consideration. The time is at hand when "March suns and March winds" will tell with peculiar force on the latter.

R. ERRINGTON.

THE FLOWER-GARDEN.

SMALL VILLA GARDENS. DWARF ROSES.—In the last number we gave a pretty long list of desirable dwarf roses. If the garden will admit of it we would recommend a few China roses, such as *Archduke Charles*, pale shaded rose, changing to crimson; *Cramoisi Supérieure*, rich velvety crimson; *Duchess of Kent*, white, edged with rose; *Madame Deprez*, pale lemon; and *Mrs. Bosanquet*, delicate, pale flesh. These roses are well worth growing, having a constant succession of flowers. Even the common monthly China rose is beautiful.

TEA-SCENTED ROSES.—Though rather tender, yet this class of sweet-scented beautiful flowers ought not to be entirely omitted. During winter they will require a slight protection. A few branches of fir or furze, or even the fronds of the common fern, will be a sufficient shelter from the winter frosts. Stick three or four of them round each bush, so as to form a kind of rude tent, but removing them as soon as the weather becomes mild. The following are a very few select kinds:—*Adam*, blush rose, beautiful, very sweet, large, and full; *Bride of Abydos*, creamy white, tinted with rose; *Deroniensis*, pale yellow, very large and full; *Eliza Sauvage*, yellow, centre orange, large and full; *Nina*, blush rose, fine, large, and very double; *Fragrans*, bright rosy crimson, pretty, small, very double, and sweet. We are afraid we have given too long lists of roses, but they are all good, and the purchaser cannot do wrong in taking any of them.

PERENNIAL FLOWER-ROOTS.—In town gardens these plants, properly selected, are very desirable. The great consideration is to have such as will thrive moderately in a smoky atmosphere. It is wise not to expect too much success in their cultivation. In the second number of this work you may see some remarks on this subject, to which we refer you. The selection is made with especial reference to town gardens. There are a great number of beautiful plants that would not exist in such situations. These are, in consequence, omitted.

Aconitum vulgare (Common blue Monkshood), 3 feet.

Anemone Appennina (Apennine Anemone), blue, 3 inches.

American (*Czackia*) *lilliustrum*, white, 9 inches.

Antirrhinum majus (Great Snapdragon), various colours, 18 inches.

Aster amellus (Blue Star Wort), 18 inches, blue.

Cartha pulustris flore pleno (Double Marsh Marygold), yellow, 1 foot.

Campanula persicifolia (Peach-leaved Bell-flower), 18 inches, blue, also white.

Centaurea montana major (Larger Mountain Centaurea), blue, 18 inches. Plant this in quantities, as it is very pretty, growing under trees, and flowering abundantly and early.

Ficaria ranunculoides pleno (Double ranunculus-like Pilewort), yellow, 6 inches.

Helianthus multiflorus pleno (Double Many-flowered Sun-

flower), yellow, 3 feet, very handsome.

Hemrocallis cœrulea (Blue Day Lily), 1 foot.

— *flava* (Yellow Day Lily), 2 feet.

— *rutilans* (Red Day Lily), 6 inches.

Iris graminea (Grass-leaved Iris), 18 inches, blue.

— *Germanica* (German Iris), 2 feet, blue.

— *sambucina* (Elder-scented Iris), 2 feet, white.

Lathyrus latifolius (Everlasting Broad-leaved Pea). This plant is very ornamental, and will answer well to plant against palings, walls, or the stem of a tree.

Lysimachia verticillata (Whorled Loosestrife), yellow, 18 inches.

Pentstemon gentianoides (Gentian-like Pentstemon), purple, 2 feet.

— *coccinea* (Gentian-like scarlet Pentstemon), scarlet, 2 feet.

Phlox Brightoniana (Bright's Phlox), red, 2 feet.

— *Van Houttei* (Van Houtte's Phlox), striped, 2 feet.

— *omniflora* (All-flowered Phlox), white, 1 foot.

Rhodola rosea (Rosy Rhodiola), 6 inches.

Saxifraga retusa (Retuse Saxifrage), red, 3 inches.

— *pedatifida* (Foot-cleft Saxifrage), white, 3 inches.

The two last form green tufts, and thrive well under trees in the very heart of towns; we have seen them in such situations in a smoky manufacturing town in Yorkshire, growing in large patches, where almost no other plant would exist.

Saxifraga crassifolia (Thick-leaved Saxifrage).

This plant also thrives in the midst of smoke, but not under the drip of trees or shrubs.

Spiraea filipendula flore pleno | *Trollius Europæus* (European (Double Dropwort), white, 1 ft. | Globe-flower), orange, 1 foot.

BULBOUS-ROOTED FLOWERS.—The above are quite sufficient for a small garden with the addition of some bulbs; the latter thrive pretty well in gardens situated as the one above described, especially *Scilla campanulata* (Bell-flower Squill). This plant will also thrive well in shady places, under trees, near large towns; we have seen large patches of it flowering beautifully in such situations. In cultivating bulbs, such as crocuses, snowdrops, jonquills, narcissus, squills, &c., you must always remember that the crop of flowers will be less or more in proportion to the crop of leaves; without fine large leaves, continued on the bulbs till they gradually decay, they will produce little if any flowers next year. For the sake of neatness, too, many persons cut off the leaves of bulbs nearly as soon as the flowers decay: this is a great mistake. Upon the maturity of the bulbs the power to produce flowers the following season depends. The bulbs cannot mature themselves if the leaves—the grand organs of the plants, and only next in importance to the roots—are prematurely destroyed. You must, then, bear with the rather untidy appearance of leaves turning yellow, in order to mature your bulbs, and so induce abundance of bloom.

FUCHSIAS.—These most lovely plants are fit objects to ornament the beds or borders of amateur and cottage gardens. Mr. Beaton, in the 20th number, has given ample and judicious instructions how to manage them for the window or greenhouse. The management for fuchsias to plant out of doors, and to propagate them, are exactly as Mr. Beaton describes, but they will require inuring to the open air as soon as they begin to grow, by giving plenty of air, and even drawing off the lights of the frame or pit. Those that are just struck in the cutting pot should be potted off singly into small pots, and kept pretty close in the frame for a fortnight or three weeks, when they should be subjected to the same hardening process as the last year's plants. Fuchsias are exceedingly ornamental in gardens of all sizes and descriptions, and are fit alike for the costly gardens of the nobility, the neat villa garden of the amateur, and the lowly cottager's flower border: they are not out of place in any of them.

CHRYSANTHEMUMS.—These very ornamental autumnal flowers will now require looking after. Such as have been left in the ground all winter, may now

be taken up and divided; potting the divisions into as small pots as the roots will go into without crowding or cramping. Place them in a cold frame, or on a shady border, plunged in ashes; and protect them from heavy rains and frosts until the warm weather arrives, when they may be repotted, and plunged in a more open situation, to cause them to grow bushy. To propagate them by cuttings, the method has been described at page 67; as also by layers, in the same place.

COTTAGER'S FLOWER-GARDEN.—We saw in a cottage garden, a few days ago, several plants in flower, which, at this early season, delighted us greatly. Wallflowers, in goodly numbers, were shedding their sweetness on the soft air, for it was a fine, sunny morning. Polyantheses, too, were opening their pretty flowers; they were but common ones, 'tis true, but they pleased the eye of the admirer of the beauties of the floral creation quite as much as the more highly cultivated florists' varieties. Crocuses, snow-drops, and a patch of the double pink hepatica, made this humble garden look really gay and joyous. The cottager, during his breakfast half-hour, was apparently as happy as his flowers. He was turning up the soil of one of his beds, and the smell of the earth was quite refreshing. We hope a great number of our cottage friends are every day taking advantage of the fine weather, and diligently making use of their leisure minutes—for minutes now are of great value. Dig, sow, and plant all things in their proper season; and the effects of your industry will soon be seen, and will be a source of inward satisfaction to your own minds, and a delight to all your friends. Your example will also have the effect of stirring up your more indolent neighbours to imitate you; and thus the circle of industrial habits will be extended more and more, till the English cottage gardens will be the means of bettering the condition, habits, and gardens of every cottager in the three kingdoms of Great Britain; and may extend their good influences, under the Divine blessing, to every country of the world. So, you see, your industry may have a greater moral power than you may be aware of. While you, perhaps, are only thinking of keeping your garden in good order, and making the most of it for your family, others, seeing the good effects of your industry, may be induced to forsake evil ways, and strive to be as good and happy as you are. Ponder these remarks over in your mind; they are given in the heartfelt desire to increase the well-being and happiness of all cottagers.

ANNUAL FLOWERS.—It will soon be time to sow these pretty plants; such as are hardy, in the open border, and the more tender kinds in a gentle hotbed. If you have not purchased the seed for your annuals, do so at the earliest opportunity; and if your hotbed is not in a state of forwardness, set-to in good earnest to make it, in order that the violent heat may have time to moderate previously to the seed time, which is fast approaching. This last paragraph is for both amateurs and cottagers; and we trust they will attend to the instructions given in the 18th Number, about the methods of forming hotbeds.

FLORISTS' FLOWERS.

ANEMONES and **RANUNCULUSES** may yet be planted, but had better be thrown into water for a few hours previously to planting, to cause the bulbs to swell, and prepare to put out fresh roots as early as possible. (See pp. 71 and 220.)

TULIPS.—We hope your choice tulips are now looking out of the ground, strong and healthy. Pay particular attention to preserve them from frosts and biting winds; stir the earth occasionally when the surface becomes crusty. On warm, mild, sunny days, you may allow them now to enjoy a full exposure to the light and air, and also any gentle showers that may fall. "March lamb storms," as cold sleety weather is called in the north, you must especially guard against, or you will have, very soon, spotted sickly leaves, which will make the plants weak, and cause them to produce poor imperfect blooms. Protect them, then, from such weather with untiring assiduity, by all the means in your power.

PANSIES.—The choice ones, that have been kept in pots through the winter, may now be planted out in the place or places where they are to bloom. Unlike most other florist flowers, these favourites may be planted in patches in the borders amongst the more common flowers. In planting them in this situation, take care to make the soil, for at least a foot diameter, and as much deep, rich and light: this is what they delight in. See p. 77, for the proportions of loam, vegetable mould, &c., that they require. Do not plant these good varieties on a north border, or other very exposed situation; they love the light and heat of the sun in the spring months of the year, as you may soon perceive. If you observe the natural arrangement of the flowers on each plant or patch, you will see that every flower exposes its beauty to the rays of sunlight; therefore, to plant in a situation where the sun cannot shine upon them is a great injury, and deprives them of that light which they enjoy.

T. APPEBY.

GREENHOUSE AND WINDOW GARDENING.

THE next six weeks will be the busiest time in the year with gardeners, and writers on gardening; and also the time to try the temper, the patience, and the abilities of the new recruits, which the commissioned officers of "THE COTTAGE GARDENER" have been enlisting into our ranks all over the country for the last few months. The grand secret, to get on well at the beginning, and to keep out of the awkward squad, is, "not to be in too great haste about anything." A good servant is never in a hurry; and any one who does a thing properly at the proper time, and will not put off till to-morrow what can be done as well to-day, will never be far behind. The greatest danger that I can foresee in the spring, likely to happen to my young recruits—of whom I am very thankful to be able to say, that I never exerted my pen for more grateful readers—is, that their hot-beds for raising seedlings and striking cuttings will be made in too great a hurry; and if they are, depend on it we shall lose much time.

HOT-BEDS.—One-half long stable dung, and the other half oak, beech, or chesnut leaves, mixed, and turned over and over and over again, till they are almost half-rotten, are the best materials for hot-beds. Make the bed a good thickness at once, so that it will keep a steady heat for a long time. If you could get a good thick layer—say ten inches or a foot—of tanner's bark, in a dryish state, to put over this bed, it would add wonderfully to its efficiency, and effectually keep down the rank steam of the dung, and also enable the bed to keep a steady heat much longer. Besides, the tan itself is an excellent thing to heat mildly, and the best thing in the world to plunge

pots in for bottom-heat. If you keep it pretty dry on the surface it will last a long time; too much wet will soon perish it. The next best covering to keep down steam, and yet let up the heat, is any kind of sand, only it must not be more than three or four inches thick; and the worst covering is sawdust, for when the first flush of dampness is driven out of it by the heat it gets quite dry, and is then a powerful non-conductor of heat; and if you keep it wet, so as to be a medium for conducting heat, it soon rots. The most perfect way, however, to rear a lot of young things, with little trouble, is by a small tank bed, covered with Welsh slate three-fourths of an inch thick, which slate is sold from sevenpence to ninepence per square foot. Slabs of stones are the next best covers; and wood is the worst, because it is, like the dry sawdust, a non-conductor of heat, and soon rots. The cheapest way to heat such a tank is, by a small iron pan boiler, that would hold eight or ten gallons; and that kind of boiler is sold at so much for every gallon it will hold. I had a very good one last autumn, with two flanges cast on it to receive the pipes, for less than a shilling per gallon; and they are set like coppers for a wash-house or back kitchen; and as they have wide open mouths, there is never any trouble about them, either as to cleaning or getting out of order. Stout wooden lids are made for them at an extra cost. It would occupy too much space at this busy season to go into details on this subject. Almost all ironmongers are well acquainted with the ways of arranging this apparatus, and so are the different nurserymen all over the kingdom; and there is hardly a good gardener anywhere who would refuse to give his advice on the subject, for there are no secrets kept about these things now-a-days; nevertheless, I shall return to the subject some day, and go into all the minutiae on the whole subject. Meantime, let us suppose that a hotbed of some sort is ready to receive seed-pots, cutting-pots, and newly-potted-off little plants—no matter how hardy they may be.

It seems to be a universal law of Nature, that the young of all plants and animals are much benefited by comfort and warmth during the early stages of their existence; a mild hotbed, therefore, seems to be the best means to allow this warmth to young plants; and it is well known to gardeners and nurserymen, that young "stock," as they call their nursing plants, will make a better progress in less time, in a gentle hotbed made of well-prepared dung, and covered with tan, than in any other structure or kind of heat whatever. You may have the same degree of heat, the same amount of light and air, and give exactly the same kind of culture in every respect to your plants in any other kind of hotbed or pit, but the plants will never obtain that uniform degree of health and luxuriance as they would in a close dung bed. The worst of it is, that without some experience it is very difficult and dangerous for one to manage a hotbed of dung properly. A good covering of tan, or sand, lessens this danger, it is true, by keeping down the strong ammoniacal gas, or steam, which is always disengaged from fermenting dung. When the bed, however, is just at the proper degree of strength, this gas seems to be the life and soul of nursing plants, and no doubt it is the sole reason why they succeed best in that kind of bed. There is one observation I often made on this subject, which may be worth recording while I think of it, as I never saw it in print, but I am sure it might lead to some curious experiments. It is this: whenever ammoniacal gas, arising from a hotbed, or any other source,

affects plants injuriously—within certain limits—the *youngest and most tender leaves suffer far less than the older leaves*. Just as if an infant in the cradle could escape something that affected the little sister who rocked the cradle, and to which they were both equally exposed. This is a singular property in leaves. Any other kind of stimulating or scorching, as, for instance, from too strong a dose of tobacco-smoke, will affect the younger leaves first. How is this to be accounted for? I think I could explain it, but I would rather invite criticism on the question, which is perfectly original as far as I am aware of, and may be stated thus: How is it that a deleterious gas will kill all the old leaves on a plant, without affecting those leaves that are newly formed on the same plant?

Dung beds, when once you understand how to manage them, are the best contrivances for nursing young plants; but for striking cuttings and raising seedlings a tank-heated pit is preferable, and more easy to manage at all times, and therefore better suited for young beginners. Now, instead of telling you to do such and such things on certain days, as if I were noting a prediction of the weather, after the manner of Francis Moore, the physician, I shall rather tell you the plain truth, which is, that all seeds of greenhouse plants, and of such tender annuals as may do for a window or greenhouse, will succeed equally well, and be in right good time, if sown any day in March. So there will be ample time to prepare a bed for them; and I might almost say the same thing for cuttings in any department. Of course, such cuttings as are wanted for the flower-garden do not come under this comfortable rule. Before you sow any seeds from foreign countries, you ought to ask the advice of the nearest gardener as to their merits: a great deal of time and room is often taken up with such seeds, that would be better spent on old-established good kinds, that are to be had easily and in abundance at home. A plant is not at all the worse for being old, if it is really a good sort; and novelty can never compensate the want of fine bloom in a new plant. Without attempting to name particular plants of which seed may be sown in March, it will be better to lay down a few simple rules for seedlings in general.

RAISING SEEDLINGS.—Seed-pots should be perfectly clean; and they require at least three times the quantity of drainage that would do for an ordinary plant. The reason is, that young seedlings are very impatient of too much wet or damp, and if the water does not pass off quickly through the drainage, it will soon turn the earth sour; for the tiny roots of seedlings cannot take up much of it. Coal-ashes make the best drainers for seed-pots, though not well suited for all plants. Small pots are better than large ones for seeds; and, whatever the size, one-third of it should be filled up with drainers. No dead vegetable matter, such as leaf-mould, should be used in the seed compost for tender or delicate plants. Of course, cockscombs, balsams, orange gourds, and the like, may be said to be tender in regard to temperature, but they are not so in respect to constitution, and sifted leaf-mould would be very good to sow them in. It is those of a delicate habit that require poor sandy soil to raise them in. Seeds that are very small will only require to be covered with earth; and the pots for them should be watered before they are sown, as for calcicolarias. Seeds of the sizes of turnip or onion seed should be covered one-eighth of an inch, and all above that size should have less sand in the compost, and be covered one-fourth of

an inch. The more uniformly damp the pots are kept, and the less water they get till the seeds are up, the better; and for this purpose, it is a good plan to place sheets of dry brown paper over a lot of seed-pots, till the seedlings are seen pushing up the soil, and then they must have light. Covering seed-pots is like killing two birds with the same shot—it keeps the soil more uniformly damp; and it is well known that seeds sprout readier in the dark; and, although I have recommended a good hot-bed for them, I hardly know a greenhouse-plant whose seed may not be reared in a good window. If it takes a longer time that way, it often is the safest plan after all, for the air is always more pure for them that way.

Another very good way of raising seedlings, is to sow the seeds in pots in which plants are growing, scattering them very thinly, and leaving a little part without seeds; to give the watering over that part so as not to disturb the seeds; and the spare part might be marked off with two little pegs, so that you would not forget where the seeds were, in case the pots were turned round. I once knew an old gardener—a very honest man, as all gardeners are, or should be—and he made a regular practice of stirring the surface-soil of all his pots about this time, and then scattered several kinds of seeds over them. His capsicums, tomatoes, and, indeed, many of the common kinds of plants, he used to get up that way; and his philosophy was better than his practice in this respect, for he used to say that any packet of seeds contained some which would produce stronger plants than the rest, and that by sowing them in this rough manner the strongest ones would only succeed, and these were always easier to manage afterwards, just as is the case with self-sown seeds in the borders. He even went so far as to assert, that the whole animal and vegetable kingdoms would have dwindled down to mere abortions, had it not been for a wise law of nature, which ordained that each strongest of its kind would take the lead and keep down the weakest; and I dare say he was not far wrong. Now these sorts of anecdotes are never out of place when we are giving long details of minute practice—if only on the principle that “all work and no play makes Johnny a dull boy;” therefore, to relieve this subject, I shall introduce another one without any apology, and very likely it will be new to most of my readers.

That gifted young lady, Mademoiselle Jenny Lind, who is making such praiseworthy use of the great talent entrusted to her care from above, is as fond of plants, and her garden, as any of our readers can be. She has a villa on the west side of London, which is regularly furnished with pot flowers by a nurseryman—a friend of mine: he says he never brings her a lot of fresh plants without her expressing her fear that he is taking too much trouble about her plants, and charging too little for them. How different from the general rule! Poor fellow! he was taken very badly with the influenza a few months' since, and this charming lady would steal away from the great world, and sit in his lonely chamber, as if he were the greatest man in London; and after her soothing consolations, and other marks of her great kindness of heart, when he would tell her how such and such plants should be managed till he got better, she would express herself as the party most served. I hardly know how this simple tale will read in print, but it seems to do one good to write about it; and yet it hardly exceeds the kindness which has been extended to myself, from many of our readers; and of which I would only remark, that praise, even if well-merited,

is a species of flattery; and flattery itself is the sharpest weapon, in the hands of the great enemy of mankind, to lop off our best bearing branches.

POTTING.—If the weather holds up fine in March, such as we have experienced through the month of February, potting of plants may become general; but it is never a good plan to begin very early when the weather is against us. All our labours in the spring, and particularly potting, should be regulated by the state of the weather. To do justice to plants that have been a long time in the same pots, all the looser parts of the old ball should be carefully shook off, the drainage crocks picked out from among the roots, and, if the roots themselves appear either unhealthy or dried up, portions of them must also be removed, even at the risk of giving them a temporary check; so that between one thing and another, the plant must be somewhat crippled for a time, and if bad weather intervenes, it will aggravate the case; therefore I am not an advocate for very early spring potting among amateurs. With gardeners it is very different: if the weather does not suit their operations, they have recourse to artificial climates; but we, in our quiet ways, must cut our coat according to our cloth; and if we make a strait-jacket of it, we shall be hampered in our movements. It is a good plan to look over the different pots a day or two before shifting the plants, and any of them that may appear dry should be well watered, as it will never answer to put an old dry ball of earth into fresh mould. The water could not penetrate the dry soil afterwards, but would pass off through the new soil, without any benefit to the poor starved plant; neither would it do to water the plant, and then pot it the same day. In that case, the water could not part freely from the old ball, and might endanger the life of a delicate plant. No doubt there are many plants that can hardly be killed by bad treatment, but it is always the most prudent course to keep to the safe side of a question. The proper rule in this instance is, that the old ball be as near as possible of the same degree of moisture as the new soil; and that degree is a non-descript—neither wet nor dry, but something between the two, for which we have no proper name.

GERANIUMS.—These are among the first greenhouse plants that should be potted in March; but those that are to bloom early in May are usually in their blooming-pots early in October. If you have stopped some last January, to succeed the May ones, after aunt Harriot's plan, they also should have their final shift before the middle of the month; and a few more might be stopped shortly for a third succession, but they ought first to be potted, and have a fortnight or three weeks in the fresh soil, before they are stopped. It is a very bad plan to pot and stop them at the same time. Give them very rich soil and good drainage: broken bones in a small state is excellent drainage for them. Give all your geraniums a slight shower with the syringe, if you have one, about twice a week, all through the month of March, if the weather is fine and sunny. Early in the afternoon is the best time to give this shower, and shut up the house directly afterwards. This treatment will not hurt any greenhouse plants in March and April, when they are growing fast; but on all these occasions open the house very early next morning, to let out the damp before the sun will steam it up, and thus force the plants. There is a wide difference between assisting and forcing nature.

GLADIOLI.—With plenty of air and sun, and a moderate degree of moisture, these will make a rapid

progress after once they are well in motion. My own latest ones will be three inches above the ground on the first of March, but I potted them early in November. I put them in a cold pit, plunged in coal-ashes, with a thin layer of moss over them; and they have had no water since, yet the soil is dampish still. I ought to say, however, that the pit faces the north, behind a garden wall; for I want them to flower late, say from the middle of July to September. But no doubt there are thousands of them not yet above ground, all over the country. D. BEATON.

THE KITCHEN-GARDEN.

PARSNIPS being one of the most nutritious roots of the earth's produce, we know of no root at all so worthy of cultivation for the amateur and cottager who has a cow or a pig. There is not a root at all equal to it in producing fine-flavoured bacon or pork, and butter, or beef; it also is a most nutritious root for the table, and one of the best, if not the very best, substitute for the potato. An immense weight may be produced from an acre of ground, if it be well trenched, ridged, forked, and surface-stirred, in order to get it well pulverized previously to sowing the seed. The sowing should be in drills, one foot apart, any time previously to the 21st of March, that the weather may be favourable for the operation, and the soil prepared in proper condition. We prefer the first week in March, if all matters are suitable, for sowing this invaluable root. Shallow hoeing, with Dutch hoes, between the drills, immediately the plants can be seen—first scarifying, raking, or small harrowing, in a light manner the drills cross-ways, to break the scudd, or earth's surface—is the first operation: and then thinning out the plants as early as possible, at the first hoeing, to a few inches apart; after which, according to the staple of the soil, the manure applied, and health of the plants, we thin them from 9 inches to 15 inches, but 12 inches, or thereabouts, is our average distance. The parsnip delights in a good, rich, loamy soil, and also is fond of a good portion of manure, trenched in and well incorporated deep in the soil. If the ground is only dug, and the manure placed shallow and in lumps, it is most certain to produce a large quantity of forked and fibrous, instead of fine, long, tapering, single roots. Our practice is to hoe and surface-stir as often as possible, in suitable weather, until the surface is covered with the foliage of the parsnips. Any kind of soil, if well trenched and prepared as above described, will produce a fine crop of them. The varieties most esteemed, are the *Guernsey* and *Hollow-crowned*.

LEEKs.—The London Flag-leek is a famous variety. Sowing about the first or second week in March will be found the proper season for securing strong plants by July, which is a good time for planting out to succeed a summer crop. Leeks delight in a good portion of manure, and may be produced of a large size. Plant them one foot apart each way, in a shallow trench, thrown out similarly to that we have recommended in a previous number for celery. This is an excellent plan, as it furnishes the ready means of watering. If a dry summer and autumn occur, watering will be found essentially necessary. Also the earth cast out will be convenient for earthing them to blanch. The rows should be planted cross-ways of the trench. The application of good liquid manure will very

much add to the size and colour of the leek, and of producing it of a fine mild flavour. It is a most profitable root for the cottager's garden, as it is capable of resisting the most severe winter, and is at all times handy to pull fresh, for making soup, or leek pies, so much esteemed in some parts.

LETTUCE.—This is a very useful vegetable for any garden. In the summer season good lettuces may be produced in a very few weeks; and sowing a pinch of seed occasionally on any spot or corner of ground will furnish sufficient plants for putting out for producing good lettuces in succession. Though they may in the height of summer, if hot weather prevails, start, or run to seed, rather early, yet none need be wasted where a pig, cow, or sheep are kept; for either of which animals the lettuce is a most excellent article. There is an endless variety, but none to be more esteemed for hardiness and general purposes throughout the year than the old *Egyptian Brown Cos*—a lettuce always crisp in eating, and of fine sweet flavour. If planted on well-prepared soil, it will grow very large. The *Brighton White Cos*, and also the *Brighton Green Cos*, are most excellent spring and summer lettuces; and so is the *White Cos*, so much esteemed and cultivated by the London market gardeners. The *Cilician* is also a good summer lettuce for stewing purposes; but we know of no better variety than the *Victoria Cabbage Lettuce* for the latter purpose, it being a handsome, firm-hearted lettuce, and will stand a considerable time before starting for seed, a property so essential in the middle of summer. The old *Hammersmith Hardy Winter Cabbage* lettuce is also a famous variety for winter and early spring use. We need not here enumerate any more varieties, as the above well-proved kinds would, with a little management, furnish good lettuce every day in the year. Lettuces delight in well trenched, rich pulverized soil; and hoeing and surface-stirring cannot be too often performed about them in dry weather. Their size may be very much increased by liberal soakings of liquid manure.

ROUTINE WORK.—Trench every spare corner; fork and surface-stir all soils already trenched, and among the crops. See there are no gaps left among the autumn-planted cabbages, lettuces, &c. Plant, in succession, cauliflowers and beans, and sow late varieties of peas. See that the surface of the asparagus beds are lightly forked, preparing the earth's surface in a friable condition for the buds to push through. Sow full crops of onions and Horn carrots; drill-sow them by all means. JAMES BARNES.

TO CORRESPONDENTS.

SEEDS OF LILIUM LANCI-FOLIUM (Rev. G. Griffiths and An Amateur).—These, if sown this spring, might produce bulbs which would flower five years hence; certainly not sooner than in four years, even with the best management; and they might not bloom for even seven years. The experiment is hardly worth trying, since small bulbs of this flower can be had for a shilling or eighteen-pence.

IRIS SEEDS (Ibid).—The seeds of all irises should be sown as soon as they are ripe, or any time in the autumn, preserved in a cold frame through the winter, and they will come up in the spring. When not sown till the spring, they generally take twelve months to vegetate; perhaps a slight hotbed would accelerate their germination. As to their treatment, that depends on what kind of iris they are. The Spanish iris (*Xiphium*), and the English iris (*Xiphoides*), are the two sorts generally grown from seeds. They are bulbous plants, and sport into endless varieties from seeds; and the different varieties are increased from offsets of the bulbs, like the crocus. In dry light soil they are quite hardy, and should be taken up every third or fourth year, divided and replanted again immediately, setting them three inches deep. They are most beautiful plants, and flower in June.

HEATING A PIT (A. S., Gateshead).—Your pit, 21 feet long and 6 feet wide, is heated by a tank; you keep half-hardy plants in it through the winter, and grow melons and cucumbers in summer. It has a good cast-metal hoiler, 18 inches long by 16 inches wide, with

about 6 inches rise for the flow pipe and the return one at the bottom, and 4 inches of water in the tank. It requires a long time to raise a heat if not in constant use, and you used to grow melons on the hot-bed well; but now with this tank you cannot, although you grow good cucumbers. You find by placing the soil on the flags covering the tank, that it gets too dry; and, by requiring so much watering, the fruit all drops off. You propose to take out the tank, and fill the pit with hot dung, and a small flue in the front, to warm it enough for keeping plants in winter. Upon this we have to observe, that tanks are never desirable for preserving half-hardy plants. We have predicted your case in "The Gardeners' Chronicle" six years since, as to the effects of close tanks on the roots of melons. The best gardeners can hardly grow melons over a close tank; and when they can, they could grow them just as well without tanks. As you have a tank, it is best not to disturb it, but adopt the following plan for this season, and let us hear from you in the autumn:—Carry a flue from the boiler fire as you propose; and before you make up the bed for melons move the slates which cover the tank, so as to leave a half-inch space between their edges; then lay small pieces of broken bricks or round pebbles along these openings, but not quite close, and cover the whole of the flags with two inches of rough cinder-ashes; on the cinders place rough turfy soil, or if you can get moss an inch or two of it over the ashes would be better; the object being to prevent the soil in the bed mixing with the cinders, as the vapour from the tank rising between the joints of the slates is intended to fill up the spaces among the cinders, to give a regular *moist bottom-heat*; a foot or fifteen inches of good soil over this ought to grow melons well. We have grown excellent melons exactly on the same plan, barring the flue; and we know there is a great economy in using the flue; and to counteract the dry heat caused by the flue, place three draining pipes of two-inch bore in the bed, one in the middle and one near each end, placing the lower ends directly over the open seams between the slates; the warm vapour will rise through these pipes to the pit, and be very congenial to the plants; and in dull weather, or when the fruit is getting ripe, you can cork the pipes with a handful of moss, so that you can have a dry or damp atmosphere at pleasure, and also a great addition to your top-heat.

NAME OF PLANT (H. H. H.).—From the half of the flower-head sent we cannot tell the name. It is something like that of an Amaranth, but in other respects it resembles that of a Sumach. Is your plant a shrub, or herbaceous plant? Is it hardy, or a greenhouse plant? When did it bloom? Send us these particulars, and a leaf or two.

VERMIN IN PIGS (A Subscriber).—If you mean lice, rubbing the pigs over with Scotch snuff will effectually destroy the vermin. If some escape the first rubbing, a second will be effectual. Keep your pigs clean, and change their litter frequently; you will not then have them thus troubled.

RASPBERRY TRAINING (Ibid).—The best mode is to train the canes in a fan-form against a trellis, like that for espaliers. The next best mode is to make a hoop, about a foot across, and to fasten the canes (not more than three) at equal distances round it. A stake driven into the ground, and tied to one side of the hoop, will keep it firm. Your other question does not relate to any object connected with THE COTTAGE GARDENER.

WISTARIA AND MAGNOLIA (An Amateur, Nottingham).—These, though eight years old, may be moved at the end of September, when their owner has to leave the house. Great care must be taken to injure or reduce the roots as little as possible, and that they be kept from drying by covering them thickly with wet moss. Plant them again as soon as possible, and cover the surface over their roots with mulch. If October be dry, the roots should be watered daily; and we would shade the magnolia by means of a mat from the mid-day sun. Your apple-tree on a hill-side will not be injured by the water-pit made near to it.

FUCSIA SPECTABILIS (R. Hobley).—You will find your question answered at p. 248.

SMOOTH SURFACE FOR A POND-BOTTOM (C. E. W.).—Your pond being formed in a stiff clay, will hold water without any assistance. To give a smooth hard surface at the bottom and sides, cover them with the following mixture, putting it on when they are dry, and during dry weather:—two parts very dry lime in fine powder, and one part equally fine, dry, coal-ashes; mix them, as bricklayers do their mortar, into a paste with boiling coal-tar. Put it on to the bottom and sides of the pond with a shovel, about three inches thick. The bottom and sides should have been made smooth before applying it. In a few days it will become hard.

COMPOST HEAP (Ibid).—This, which you made last autumn of the following layers, common soil, couch-grass, soot and night-soil, and stable manure, will be ready for use this spring. But we fear the couch-grass will not be killed. Fork it out, and make it into a heap, with alternate layers of common salt. This will kill it, and make it into a capital application for your potatoes to be planted next autumn.

DOUBLE SWEET-WILLIAM (A Cottager).—There are thirty or forty varieties of this flower. The best mode of propagating them is by layering them in June or July. Peg down the side branches, giving them a slight nick with a knife underneath the part covered by the soil, and give water plentifully in dry weather. The layers will be rooted in seven weeks; they may then be cut away from the parent plant, and potted into a light rich soil, and the pots plunged in a north border. They should be moved in October into some place where they can be sheltered from severe frost.

CLIMBER TO COVER AN OUTHOUSE (R. Smith).—By all means use the Irish ivy. This is always green and ornamental. The hop will not flourish except in particular soils, and has to be cut down every autumn.

MANURE FOR ROSES (R. C. S., Cheltenham).—The best compost for your rose-beds will be a mixture of one part guano, three parts charred turf, one part super-phosphate of lime, and six parts cow-dung. They should be thoroughly mixed, and an inch in depth spread over the

border, and slightly pointed in early this month. The best liquid manure for roses is formed by mixing one pound of Peruvian guano in twelve gallons of water.

CANKER IN APPLE AND PEAR TREES (M. R.).—The very fact of your young trees being planted in an old orchard, is enough to account for their being cankered; but its being rather a heavy soil, and the leaves of the peaches blistering, shew also that another cause of canker is present—too much moisture. We recommend you to drain your garden immediately; and to give it a good manuring, especially your fruit-tree borders, with charred refuse and super-phosphate of lime, (dissolved bones), four parts of the first, to one part of the second. Cut away all the cankered branches at once.

PRUNING A PEACH-TREE'S ROOTS (E. B. W.).—Do not take it up to do this. Dig a trench round it at about two feet from the stem, and cut through the roots at that distance. From this trench you may also get at any tap-root, by scooping the earth away on one side, so as to get quite underneath. Is your peach-tree, which you say is eight years old, very luxuriant? if not, we fear that root-pruning will not prevent its shedding its fruit. If the tree is not luxuriant, take out three inches of soil, to a distance of three feet all round from the stem; put in two inches deep of mulch over the whole of the space excavated, and then return the earth over it.

CUTTING DOWN AUTUMN-BEARING RASPBERRIES (Clericus).—You ask, "are the young canes of last summer's formation to be absolutely cut down to the ground in April, and will young canes rise up the same summer time enough to bear fruit in autumn? Will this apply to old raspberry ground as well as to suckers recently planted?"—Mr. Barnes says, "In answer to your enquiries respecting the *autumn-bearing raspberry*, I beg to state that the canes of this year's growth are those which will produce the fruit in abundance from July to November next, if the *true autumn-bearing raspberry* is cultivated and managed as previously directed. The same holds good equally with old stools as with young, or fresh plantations, but I could never observe the old stools of this raspberry worth cultivating after they were two years standing on the ground. With other varieties of raspberries the case is widely different, as they are known to stand well, and produce abundance of fine canes and fruit for several years on the same spot, if judiciously pruned, trained, and manured. Still, we find, to keep up good and vigorous plantations of any variety, we do best to select a few of the strongest canes annually; thus planting a fresh row or two, and grubbing up an equal portion of those most worn out."

EVERGREEN CREEPERS (M. T., Gloucestershire).—*Cotoneaster microphylla*, a plant that has the peculiar habit of creeping towards the north; *Caprifolium sempervirens* (evergreen honeysuckle); *Vincetoxicum* (large periwinkle); *Vaccinium decumbens* (trailing whortleberry); *Vaccinium luxifolium* (box-leaved whortleberry); *Polygala chamaebuxus* (hastard box); *Genista decumbens* (trailing broom; and *Gaultheria procumbens*.

CAMPANULA PYRAMIDALIS (An Amateur).—You do not say whether you have a garden or not; we will suppose you have. This plant may be propagated *by seed*, but it is a tedious method, and requires a great deal of attention. Proceed as follows:—Fill a wide-mouthed pot with light sandy earth, very nearly full; then, with a round flat piece of wood, or an empty flower-pot will do, press the earth gently down level; then sow the seed evenly all over the pot, rather thinly. It is very small seed, and will require some finely-sifted earth to cover it. It must be covered very thinly; the thickness of a shilling will be enough. Water with a fine-rosed watering-pot; and set the pot in your window, facing the morning sun; water whenever the surface becomes dry. If the seed is good it will soon come up, and will require attention in watering, or the plants will fog off if kept too damp. As soon as the plants have four leaves each, transplant them into pots five inches diameter; five or six plants in each. Allow them to remain in those pots till they become nice stocky plants; then, if you have a garden, make a small bed of rich light earth. Plant them in it, four inches apart every way. Let them remain in this bed till the autumn, when they will be strong plants; and several of them will flower the following spring. Take the strongest, and pot them in a rich light soil, in pots 7½ inches wide. The weaker plants may remain in the bed, and should they show flowers, nip off the stems, and the plants will form three or four heads each; and if put into twelve-inch pots the following autumn, will form splendid specimens. Keep those flowering plants, whether one or two years old, in a cold frame, sheltered from frost with mats; or, if you have no frame, place them in your window in pans, and give moderate waterings through the winter, increasing the quantity as the flower stems advance. *By Cuttings*.—Take these off the old plants as soon as you can; put them in five-inch pots of light sandy earth, three or four in a pot. If you have such a thing as some light silver-sand, put about one inch on the surface of the soil. This will help to prevent the cuttings damping off. As soon as they are rooted, pot them singly into three-inch pots, or plant them out in your garden, as directed for the seedlings. If you have no garden to plant them in, let them remain in the three-inch pots till they have filled the pots with roots; then pot them at once into their blooming-pots, eight-inches wide, in rich earth, and manage as described above for the seedlings. These plants are easy to grow, with moderate attention; and are as handsome window plants as any.

EARLY KING OF POTATO (J. A. Brewer).—Plant Ash-leaved Kidneys, and London Early round. If there is any other variety in your neighbourhood that ripens very early, you cannot do wrong by planting it.

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WEEKLY CALENDAR.

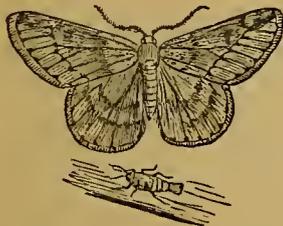
M D	W D	MARCH 8—14, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
8	TH	Frog croaks.	Ever-blooming Rose.	32 a 6	50 a 5	6 12	13	10 59	67
9	F	Gossamer floats.	Petticoat Daffodil.	30	52	rises	15	10 43	68
10	S	Brimstone Butterfly appears.	3-leaved Chickweed.	27	54	7 a 46	15	10 28	69
11	SUN	3 Sun. in Lent. Creeper's spring note heard.	Cornish Heath.	25	55	8 52	16	10 12	70
12	M	Gregory.	Spring Bulbocodium.	23	57	9 56	17	9 55	71
13	TU	Peach blooms.	Pansy.	20	59	10 59	18	9 39	72
14	W	Peacock screams.	Mountain Soldanella.	18	VI	morn.	19	9 22	73

GREGORY, named *The Great*, was made Pope in the year 590. He deserves to be remembered by every Briton, for by him was the monk Augustin sent to England, for the purpose of evangelizing our ancestors. These are not the pages to examine religious errors; therefore we need do no more than remind our readers of the gratitude due to the pontiff, who was instrumental in imparting to us islanders the tidings of salvation. May his words be abundantly prophetic—"It becomes such to be co-heirs with the angels in heaven."

PHENOMENA OF THE SEASON.—Some of our readers, upon seeing the statement above, that the *gossamer* floats this month, may remark, that autumn is the season for its appearing; and it is quite true that in the autumn gossamer is most abundant; but it is to be seen gliding away upon the air in this month also. It is so characteristic of autumn's arrival, that in Germany they poetically call it "the departing summer." It is curious to think that even men of

science, in by-gone years, have thought the gossamer to be "scorched dew;" or, that "those great white clouds which appear in summer may be of the same substance." Passing by these and other errors we will state, for the information of such of our readers as are not acquainted with the fact, that the gossamer is voluntarily darted forth by a particular spider (*Aranea obsestris*), for the purpose of being borne by it speedily aloft, and to a distance. Myriads of these little voyagers in the air have been taken during their passage; and many naturalists have seen them throw themselves upon their backs, "spread their light sails," and pass away. We may also observe, in explanation of the "Peacock's scream" we have mentioned, that this does not refer to its ordinary cry, but, as Mr. Jenyns observes, to a peculiar note uttered only by the male bird at this time of pairing; and which note, or scream, is very characteristic of the first warm weather occurring in early spring.

INSECTS.—The March Moth (*Anisopteryx ascularia*) is called *Geometra*



by some naturalists. It appears about the middle of the month. The females are wingless, as represented in the annexed drawing; but the males have wings, and measure nearly 1½ inch across them, when fully opened. The fore-wings are pale, glossy, ashy-brown, with a central, broad, slightly dusky band across them, edged outwardly with a white toothed line, and an oblique brown line extending to the tip of the wing from the outer angle of the band next to it. The hind-wings are paler than the fore-wings, with a dusky central dot, and indistinct bands. The caterpillar feeds on the leaves of the horse-chestnut and other trees; it is green, with pale lines lengthwise of the body. It is to be found in June.—*Humphrey's and Westwood's British Moths.*

MARCH	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
8	Cloudy.	Fine.	Fine.	Fine.	Snow.	Fine.	Showery.	Cloudy.
Highest & lowest temp.	61°—35°	57°—35°	45°—28°	49°—35°	41°—30°	54°—24°	49°—35°	50°—41°
9	Fine.	Showery.	Cloudy.	Cloudy.	Fine.	Fine.	Showery.	Cloudy.
	56°—30°	48°—37°	38°—24°	58°—34°	45°—32°	56°—27°	42°—22°	53°—36°
10	Fine.	Fine.	Fine.	Rain.	Showery.	Fine.	Frosty.	Showery.
	63°—27°	47°—31°	44°—28°	44°—31°	45°—32°	58°—29°	40°—7°	49°—38°
11	Fine.	Cloudy.	Fine.	Rain.	Frosty.	Fine.	Cloudy.	Showery.
	64°—30°	50°—27°	47°—40°	53°—35°	40°—24°	57°—28°	36°—26°	47°—35°
12	Fine.	Fine.	Cloudy.	Showery.	Frosty.	Cloudy.	Fine.	Showery.
	67°—31°	58°—40°	50°—32°	47°—31°	43°—21°	48°—26°	46°—25°	44°—34°
13	Cloudy.	Fine.	Fine.	Fine.	Frost.	Showery.	Cloudy.	Rain.
	59°—37°	57°—37°	52°—43°	47°—32°	25°—13°	51°—39°	47°—25°	44°—36°
14	Fine.	Showery.	Cloudy.	Rain.	Frost.	Cloudy.	Fine.	Fine.
	57°—33°	49°—45°	56°—45°	49°—39°	36°—18°	56°—47°	52°—24°	49°—24°

A LOVE of one's home and a love of one's country are the same blessed feeling; the golden band is identical, only more extended in the one than in the other. On the existence of this feeling, deeply and generally in the hearts of a people, rests the best and only enduring strength of any national government.

Our forefathers understood this better than we do; or, at all events, they acted as if they felt and acknowledged the importance of strengthening and riveting on of that "golden band." They knew that before a thing could be loved, it must be made loveable; therefore, they endeavoured to secure that the peasantry of England should have good and gardened dwellings. Many laws, now either repealed or neglected, appear in our Statute Book having that object solely for their aim. Among them was one as far back as the year 1276, in which, among other things, an enquiry was directed as to the state of all the cottages of England, the extent of ground attached to them, and the rents paid; and in 1489, another law was passed inflicting penalties upon the lords of the soil, for allowing cottages to decay, and for not appropriating to them "convenient lands." This was enforced by other laws, needless to quote, until we come to that passed in the reign of "Good Queen Bess;" which enacts, that no one shall build a cottage without attaching to it "four acres of ground at the least, to be continually occupied and

manured therewith." Other statutes might be quoted, all sustaining as their object the maintenance of respectable cottages; and without offering as our opinion that those statutes were wise, yet we applaud and admire, to the fullest extent, their object and their intention.

If that object had been kept in view in England, to say nothing of the events lately and for centuries disgracing Ireland, we should have had none of those painful details which have rendered "Dorset labour" a synonyme of misery and neglect. We are no advocates for statutes like that of Elizabeth, or for inquisitorial visits like those sanctioned by the other laws we have mentioned; but we are advocates and agitators for the erection of neat, comfortable, well-lighted, well-drained, well-ventilated, and well-gardened cottages;—such cottages as their tenants may be proud of, and may take a pleasure in adorning; cottages at least as comfortable as a beer-shop, and more profitable. If cottages were oftener such as we have described, their tenants would be far more healthy, more domestic, and more thrifty than they are.

This is no mere vision of things to be wished for, but never to be realized; for we challenge contradiction to the assertion, that every district remarkable for its superior cottages, is as remarkable for superior cottagers. We could go farther, if we chose to

state other results of our observations; for we could point to adjoining parishes, where in the one the cottages are well-built, and the tenants respectable and well-to-do; and where, in the other, the cottagers and their dwellings are correspondingly bad.

Entertaining these convictions, we are glad to welcome such a publication as *Weaver's Cottage Architecture*.* If our space permitted, we would extract from it a large portion of its sensible preface; and especially that portion which presses upon attention, that education loses half its efficacy since, under the present system of building labourers' hovels, "the instructor of youth inculcates lessons of morality and habits of modesty at school, which an overcrowded, inconvenient, and filthy dwelling precludes the possibility of practising at home"—that "comfortless dwelling which furnishes the ale-house with its victims."

The object of the work, and the way in which the author, with great judgment, has endeavoured to promote its attainment, are told in two sentences. He "shews that dwellings, with many modern conveniences, combined with some degree of picturesque effect, may be erected at but little greater cost than those upon the old and imperfect plans hitherto usually adopted;" and "his plans and designs are made so plain and distinct, that a country builder, of average intelligence, may be able to work to them, under the instructions of any gentleman who may employ him." This is literally true, and we can, without any reserve, recommend this very praiseworthy volume, not only to be placed on the desk of every landed proprietor, who, in the best sense of the phrase, desires "to improve his estate," but also on the table of the drawing-room; for its extremely neatly-lithographed sketches are pleasing to the eye; the brief account of the structures, and for whom erected, are not devoid of interest; and we would have it on that table, because it would thus gain more attention from those best of all advocates—the ladies of many households.

THE FRUIT-GARDEN.

THE APRICOT.—This is one of the most useful and luscious of fruits in cultivation; and as its proper culture equally concerns the cottager and the amateur, we must endeavour to make our information concerning it full and complete. No tree is more profitable to the cottager; none so extensively planted against the house-front or end, when presenting a good aspect; at least, in this part of the kingdom (Cheshire).

Some twenty years since, when the question of over-luxuriance in fruit-trees began to be busily mooted (very much, as we think, in consequence of a bold and solid-reasoning paper, which appeared in *Loudon's Magazine*, by a Mr. R. Hiver), we could not help being struck with the contrast which existed between these pampered gluttons of our kitchen-gardens, and the lean yet fruitful apricots of the cottager, which had stood, it may be, for more than a score of years against the chimney-end of his house; seldom missing a crop, and seldom requiring to be pruned. As for digging over their roots, that is out of the question; most of the cottagers' trees alluded to are bound down with a stone pavement. What inference could be drawn from such facts, otherwise than that gardeners over-cultivated their trees; and that this over-cultivation had been induced, in the main, by the supposed necessity of

growing vegetables on the borders which ought to be appropriated to the roots of the trees? Not only were a host of luxuriant shoots engendered, which had to be cut away, but also a serious inequality in point of strength of the shoots produced; to which, we do think, may principally be imputed the dying away of whole shoots, to which both the apricot and the red currant are equally liable, when they have originally been planted in very rich soil. Another consideration comes in question, as affected by the over-luxuriance of fruit-trees, viz., how far it affects the "setting," or, in more scientific language, the impregnation of the blossom? We have taken much pains, for many years, to investigate these things; and we have very frequently found the blossom produced by gross apricot-trees, either totally deficient in the female organ of fructification, known by the name of the pistil, or the same partially existing, but in a much debilitated state. This is, probably, neither more nor less than what our learned botanists term a morphological case, in which the pistil has become transformed, or merged, into the corolla or blossom part; for we have very frequently found a kind of monstrosity in that part on such occasions. Be that as it may, barrenness is now very generally known to be one result of over-luxuriance; and we, therefore, beg to warn our apricot cultivators on this head. We will now offer a descriptive list of kinds; and then make some remarks on soil and general culture:—

1. *Early Masculine*.—End of July. This is the best of the *very early* apricots, which, be it understood, are not the most profitable kinds. Fruit rather small, round, and of a yellowish colour, tinted with red on one side.
2. *Large Early*, or *Précocé*.—This ripens next in order, and is useful as a connecting link in the chain of the dessert. An oblong fruit, of a palish orange colour, with a very agreeable juice.
3. *Blenheim*, or *Shipley's*.—This we consider one of the most *useful* apricots in the kingdom; for, although inferior in flavour to the Moorpark—as, indeed, which is not?—it is a much greater bearer, and a sure ripener. The latter is an important quality; for slow ripeners are liable to a host of depredators, in the shape of earwigs, wasps, bees, and even ordinary flies: these, piercing a little hole, furnish an opportunity for water to lodge; and then the decay of this luscious fruit is most rapid. An oval fruit, middle-sized, and of a palish lemon colour; ripening about the first week in August. This kind is doubtless allied to the celebrated Moorpark apricot; possibly, a seedling from it.
4. *Hemskirke*.—Another of the Moorpark section, but ripens somewhat earlier. This fruit is of very old standing in England; yet little, in general, is known about it. One thing is certain, it ripens safer than the Moorpark, and this is a weighty consideration, especially with northerly horticulturists. A roundish fruit, somewhat flattened at the crown; colour, orange and red.
5. *Breda*.—A well-known preserving fruit, and the most eligible of any in our list for growing as an ordinary standard, or on any trellis device, for which we should think it well adapted. This fruit is also called "*Brussels*" by some. It is a small fruit, generally of a cramped or angled appearance; of an orange colour, and very rich flavoured.
6. *Royal*.—A good fruit, of very rich flavour, ripening just a little before the Moorpark. Of a large size, and of an orange complexion.

* Hints on Cottage Architecture, by H. Weaver, Architect. Published by H. Pope, Budge-row, London.

7. *Moorpark*.—This we may term the first apricot in the kingdom, taken altogether. It is so well known as to need little description from us.

We have now given a list of all that are truly essential, in the present position of horticulture, whether to the amateur or the cottager. For the amateur who, in a small garden, has room for three only, we recommend Nos. 3, 5, and 7. If four, then take Nos. 1, 3, 5, 7. If five, then Nos. 1, 3, 5, 6, 7. Four cottagers, we say Nos. 3 and 7. Above all, we would recommend the "Shipley's" to the cottager, as being a hardier and a larger tree, and a much surer bearer. Of course, when addressing ourselves to the cottager, we think of profit only; for we know those who make a considerable return annually out of a single tree.

SOIL.—Apricots do not love a fluctuating character of soil; whether through its innate lightness, or dryness, or through the action of spade culture, allowing them to form nice young fibres at one period, only to be destroyed in another. A good sound loam befits them best,—one which, although somewhat adhesive or greasy, will yet, by the action of weather, readily crumble to atoms. Indeed, there are few of our fruit-trees but will thrive in a soil of this character. Much more may be said on this head, but our weekly limits will not permit it; we therefore promise to return to all such matters in due time. The soil, of whatever kind, must be prepared about half a yard deep; or, if a light soil, let it be two feet. Let a substratum of brick, or other imperishable material, be placed below each tree, according to our platform directions; and see that the soil has some turfy matter mixed with it. As for manure, we prefer using a few half-rotten tree leaves, in the proportion of one part leaves to four or five parts soil.

THE CHOICE OF TREES must be ruled by the same principles as those for the peach and nectarine, in the first instance. Like them, they may be purchased from our nurseries in the character of either "maiden" or "trained tree;" and, again, the same criterion, as to the disposition of the shoots, the absence of gum, &c., must also guide the judgment. More must, hereafter, be said on all these points, some of which have a special bearing; in the meantime, we shall render more service by offering a few remarks on spring pruning, which, it will be remembered, we advised to be left until the blossom-buds were advanced, in order to be able to distinguish them with ease; for the apricot does not suffer so much loss by spring pruning as some other fruits. As off-hand maxims, then, we advise the same tying down of those young shoots which are eligible, precisely as in the case of the pear and the plum. All fore-right "snags," of a watery character, must be pruned back to natural or embryo fruit spurs, for such will only produce shoots of a wild character, if suffered to remain. No part of the principal shoots, which were trained originally, should be left bare, if any likely spray is at hand to tie down. Above all, let them have some protection from our spring frosts; for no fruit suffers more than the apricot during hard weather in spring. They are somewhat precocious in habit, and thus become particularly liable to such damage.

THE GOOSEBERRY.—We will suppose that all the gooseberry and currant bushes are pruned; and now the next thing is to see if they require top-dressing. It will be well for those amateurs, who have a little leisure time occasionally, to pay some regard to the visits of the Gooseberry saw-fly, called by our ento-

mologists, *Nematus trimaculatus*. It is scarcely necessary to state, that the caterpillar produced by the larva of this fly is a great pest in our gardens; and it is not uncommon to see whole plots of both gooseberry and currant bushes completely stripped of their leaves; on which, we need scarcely add, all depends, both as to the present and the ensuing crops, as also the stability of the bushes.

Perhaps a few words on the natural history of this insect may not be out of place. The fly escapes from a cocoon (which, in general, is imbedded in the soil beneath the bushes,) about the end of March, or the early part of April. The female directly proceeds to deposit her eggs along the midrib of the leaves. In the course of a week or two the larvæ (caterpillars) are hatched, and great is the devastation produced by them in a short time. After the lapse of a few weeks, and when they are become nearly an inch in length, their seems to occur some little change in their character, or a crisis in their history. However, successive broods make their appearance even until the month of October. When arrived at maturity, their general appearance becomes somewhat altered, and after a sort of rest they *descend into the soil*, spinning yellowish cocoons; from these the broods of flies spring forth in a few weeks; but it must be borne in mind, that another batch remains in the chrysalis state, waiting the return of spring, when they in their turn produce flies.

And now for remedies against these depredators. The ordinary mode is, to shake the bushes and collect the caterpillars. Some persons use hellebore powder, which is said to be very efficient; others use foxglove, or digitatis, which, at the time the fly prevails, is abundant on our lane or road-sides. This is made into a strong tea by boiling it in water, and the bushes are watered or syringed with it. It is also stated, that fresh slaked-lime is completely destructive of the caterpillar, if the leaf be wet at the time of applying it; some persons, as we have known, applying it as early as three o'clock on a dewy morning. Hunting for the flies, and searching for the eggs, also is practised; likewise hand-picking the caterpillars when very small. Prevention, however, is allowed to be better than cure; and we would, therefore, advise as a precautionary measure, the opening a trench one foot in depth at the extremity of the roots, and then scraping or shovelling the surface soil from over the roots, for nearly three inches in depth, into the trench, in the hopes of burying and destroying the chrysalis, which probably are not imbedded much deeper. The paring of soil should be well trampled down, and the occasion may be seized for manuring the roots in the circle or line excavated. Salt and soot might be used to cover the parings before trampling them down, or other strong matters, which are at once fatal to insect life and a manure to the bushes. We throw out these hints with a view to induce the ingenious amateur or cottager to try their hands still further; as we trust the time will arrive when this destructive pest will be as easily removed as the ordinary green-fly, by the fumes of tobacco; more especially as its ravages very frequently dishearten the cottager, and, indeed, much affect his profits.

R. ERRINGTON.

THE FLOWER-GARDEN.

LAYING OUT SUBURBAN VILLA GARDENS.—In the 21st number we described these gardens as they are generally laid out, but we would not have our readers run away with the idea that we think they cannot be

improved. Gardens in such forms are generally done by a builder's gardener, and the cheapest and simplest method of doing the job is what is mostly aimed at. Now, all this is decidedly wrong, and the occupier of the dwelling is often obliged to be at more than double the expense, to make his garden at all passable. We shall endeavour, this week, to give a few general principles that should be attended to and acted upon, in forming villa gardens, whether large or small. The first grand point is, to make the garden dry. Without this, your garden will lose half its compost; your trees, shrubs, and flowers, will be unhealthy, and stunted in growth and bloom. Whatever you do, then, have your garden well drained. Employ a man of skill and integrity, that has been used to the business, to do this important work for you. If the ground is strong wet clay, the centre drains, if the outlet for the water will allow it, should be fully three feet deep, and the cross drains to commence at their extremities with two feet, and gradually slope down to the main drain. These cross drains, in extreme cases, should be placed within four yards of each other; if the ground is not very wet, they may be at greater distances. In whatever state the garden may be, whether not formed at all or laid out ever so neatly, if imperfectly drained, this operation is imperatively necessary. Proceed, then, at once to have it done. The first expense will be the least, as, if it is well done, it will last a lifetime.

WALKS.—After the drainage is completed, and the ground levelled, the next grand point is the direction of the walks. If the garden is of small dimensions, the main walk should lead straight up to the entrance door. Nothing can be more ridiculous than to attempt a winding walk in a short distance. All natural paths, where the surface is level and no obstruction in the way, are straight. In staking out a walk, if the distance is short, you cannot put anything in the way without manifest impropriety; therefore, in small gardens, let your main walks be straight. In large gardens, such as are 80 or 100 feet in length, winding walks may be introduced with good effect, but for every bend there ought to be a reason. The projecting part of the bend ought to be planted with shrubs, pretty close to the margin, so that if you would attempt to go straight, those shrubs would prevent you. The shrubs, also, will be useful to prevent the walk, in its entire length, being seen at once, thus causing the garden to appear much larger than it really is. Whenever there is a walk branching out of another, the three points should also be planted in such a manner as to conceal the turning off of the branch, and to conceal also the entrance to the branch walk from the window. In such a garden as we are describing, at a distance from the house, there may be introduced a straight walk, with an avenue of shady trees, to walk under in the shade, sheltered from the burning rays of a summer sun. This walk, in such weather, is cool and pleasant; and, if there is a seat or two, will be a comfortable retreat in the hot days of June, July, and August. It should always be remembered, in laying out walks in level situations, to form them even. The straight walk either level, or on an inclined plane, and of an equal breadth the whole length. The winding or serpentine walk should have its curves of an easy graceful turn, excepting you have a rustic corner formed into rock-work, a small sheet of water, and a grotto. Here the curves of the walk may be more sudden, as the rock-work and water will be a reason to prevent the loungers from going straight, even for a short distance. The

manner of forming and draining walks was described very full at the 200th page, to which we refer you; and the subject will be continued in a future number.

ROUTINE MANAGEMENT.—By the time this paper comes into our readers' hands, a week of the blustering month of March will have passed over, and during the week following, if the weather is at all moderate, a good deal of work ought to be done. Winter shelters, used to protect plants nearly hardy, may now be removed, and put by, in a dry place, for the next season's services. Of course, reference must be had to the weather before this is done; should it be frosty, they must be replaced during the night. The sooner, however, they can be dispensed with the better.

ROSE PRUNING.—Pillar roses, and those against walls or trellises, must now be pruned in the manner before described. Should any standards or dwarfs in the open borders have been neglected from any cause, do not delay a single day longer to perform this necessary operation. Ample directions how to prune all the different classes of roses are given in the 6th number, pages 56 and 57. Study these instructions carefully, and put them into practice, especially with the climbing roses. Those that have been planted lately had better not be pruned until the sap is in motion, which you may easily know by observing the buds. If they are swelling boldly, and preparing to shoot strongly, you may be sure the roots are drawing up food for the plant; you may then safely prune, according to the foregoing directions. It occurs frequently that roses newly planted, and late pruned, produce late flowering plants, prolonging the season of blooming of the summer-blowing roses.

MULCHING.—By this term is meant the laying over the roots, as far as they extend, a coating of littery short dung. This was necessary and useful even to trees and shrubs planted in autumn. It served, during winter, to keep the frost from the roots, and encouraged them to keep on growing, and gathering nourishment for the buds to push forth strongly, when the warm days of spring arrived. If it were useful to apply mulching to early planted things, how much more needful is it to apply it to late planted ones! It serves now to keep the soil moist, and to protect the roots from the sudden changes of spring weather. That laid on in autumn may now be removed, at least in grounds that are kept neat and dressy; but the somewhat slovenly appearance of litter on late planted trees or shrubs must be borne with until they are fairly established.

GENERAL NEATNESS.—All gardens that have been well managed in autumn—that is, that have had the shrubs pruned, the grass edged, and the beds and borders dug—should now have a spring dressing. First, look over all the trees and shrubs, and cut off unsparingly all dead branches. See that all your stakes and their ties are right, and if not, make them so. Fill up any gaps in your borders if any plants are dead, then remove all the rubbish or litter you may have caused. When all this is finished, choose a fine morning after three or four dry days; go out with your rake in hand, and a basket by you; take a determination with you to do a good day's work, if the weather permit; commence raking your beds and borders, those that are nearest to the house, beginning at that part of the bed or border the farthest from the grass or walk, bringing the small stones, leaves, and twigs (if any), with the rake, to the edge of the border. Take these up at once into the basket, and finish one bed neatly off as you go on. Lay it down as a law, like

those of the Medes and the Persians, "that alterth not," never to leave any heaps, however small, of rubbish on the ground behind you. Leave your work, then, when you will, you leave all tidy—to use a comfortable old English word. Proceed from day to day, as the weather permits, till all the beds and borders are put into nice spring order.

GRASS LAWNS.—After the borders are raked, pay attention to the state of your lawn. If any part of it is bare of grass, and you can procure some good short turf, now is a good time to obtain it. Remove the old turf, and sprinkle a little fresh earth on the surface; then lay down the new turf, packing it closely, to prevent the joints being visible; beat the new turf well down with a turf-beater, to make it smooth and even. A turf-beater is a flat thick piece of heavy wood, with a handle three feet long—a most efficient tool for the purpose. If you cannot procure turf, proceed as follows:—Rake your plot over, and in the places that are bare of grass, make a pretty strong impression with the rake-teeth, so as to leave it rough; then procure a sufficient quantity of the grass-seed mixture mentioned at page 62; sow it rather thickly over the bare places, and then sprinkle some fine-sifted soil over it, just enough to cover the seed; level it very gently with the rake, and when it is sufficiently dry, roll the whole plot over with a heavy roller. Nothing more is wanted but warm weather and gentle spring showers, with frequent rolling and mowing, and your lawn will soon be in excellent order, exhibiting that beautiful green so pleasing and refreshing to the eye.

FLORISTS' FLOWERS.

Of all the seasons of the year, the pleasant cares of the florist are most called into requisition during the cheering season now approaching. Every class of these beautiful flowers are either shewing flowers or producing cuttings, the one to be sheltered from spring frosts and cold easterly winds, and the others to be propagated either by division or cuttings. The amateur and cottager must be on the alert, as a single night's neglect in protecting the *auricula*, *polyanthus*, and *tulip*, would greatly injure, if not totally destroy, the bloom this year. In propagating *verbenas*, *fuchsias*, *petunias*, and *dahlias*, no time must now be lost, as the finely flowering of these lovely ornaments of the summer and autumn flower-garden chiefly depends upon obtaining early strong plants to be ready to plant out as soon as the mild weather arrives, to allow us to place them in their blooming situation.

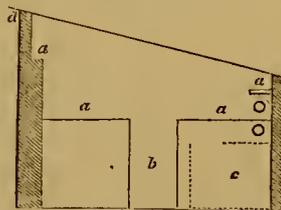
DAHLIAS.—If the directions given at page 233 have been acted upon, some of the shoots will be pushing forth. Keep a good look out, and be ready to take off the cuttings as soon as they are three or four inches long. Have some pots ready filled to within one inch of the top, with light compost of loam, leaf-mould, and sand. Fill up the other inch with silver sand, or the purest sand you can get. Give a gentle watering previously to putting in the cuttings. This will settle the sand, making it firm, so as to hold the cuttings steadily in their place. Then take off the shoots, as soon as they are long enough, with a sharp small knife. Do not cut them off close to the bottom, but leave the two lowest buds to shoot again. If, however, you observe a great number of buds clustering round the present shoots, you may then gently pull off the forward young shoots, leaving the others to spring forth. Smooth the bottom of the shoots so pulled off with your knife. Then put in the cuttings with a small stick, pressing the sand

to each cutting; place them close to the edge of the pot. Fill up any holes you may leave with some dry sand. Put the proper number to each kind as you go on; then give a very gentle watering, and plunge the cutting-pots into your hotbed, where they will soon put forth roots. T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

I BEGIN this letter with a full conviction that our lady readers will not thank me for my subject today, when nothing else is thought of in the gardening way but flowers. This is a sad damper. But THE COTTAGE GARDENER has made such a stir among a new class of readers, that thousands of our rougher sex have consented to incur the expense of erecting suitable pits to keep plants in over the winter; and, as I have already said, the spring is the best time to do such work, I am urged, on all hands, to give some directions about the best way of arranging and heating these pits. It is only natural enough, then, to suppose that I am in duty bound to respond to these calls. I may ask, however, can all these gents have come forward of their own accord, and proposed all this outlay? I very much doubt it. Indeed, I know too well how these things are generally brought about, not to be aware that much coaxing and persuasion have been expended before many letters on the subject reached me; therefore, having got them so far in the humour, if we do not hit the nail at the right time, perhaps we may go without our pits for another year: besides, these letters have been couched in such kind and friendly terms, that they are irresistible. Sam Slick would call them "soft sordur;" but depend upon it, if we are ill at ease with ourselves, or with those around us, we cannot write very softly.

One of the most economical and useful pits for wintering small plants, that I recollect to have seen, goes by the name of "Fortune's Pit;" a figure and description of it, as annexed, are given in the *Gardener's Chronicle* for 1842, page 53.



a, stages, and back and front shelf; *b*, passage along the middle; *c*, proposed bank; *d*, proposed ventilators.

"The width of the pit is nine feet; and, as the sketch is drawn from measurement, any one may easily ascertain the different proportions.

"The two stages are made of wood, having cross bars, as seen at *a*, and upright bearers on each side of *b*. The small shelf in front is supported by a bracket, which also supports the hot water pipes; and the back shelf might be supported in the same manner, although, in this instance, it is formed out of the thickness of the back wall. The only improvement in its construction is, to have a large tank in some convenient place in front, as at *c*, to receive the rain which falls on the roof; and also some wooden ventilators in the back and front wall at *d*, which could be opened at those times when it is not prudent to draw down the sashes. By having the door in the back wall, and the passage along the

middle, a person can go in at any time without pushing down the sashes; and by reaching from the back to the front, he can water or do anything else the plants may require.

"This pit is extremely useful for raising seeds, or for growing small greenhouse plants, and keeping such things as verbenas, petunias, and scarlet pelargoniums, for turning out into the flower-garden during the summer months; or by dividing it into two parts by a partition, having a door in it, one half may be used for striking cuttings, raising seeds, or keeping plants which have been newly potted off, and the other filled with well-established plants, requiring more light and air."

All greenhouses and pits of this description should be built on the surface of the ground, not sunk as those for forcing generally are: the best aspect for them is due south, but south-east or south-west will do; and where neither of these can be had, a west aspect is the next best. Indeed, an east aspect can hardly answer at all, as in the spring, when much air and moisture is needed by the plants, the cold easterly winds, prevalent with us at this season, would chill and ruin many plants. If the situation is at all damp, I would strongly urge the necessity of cutting off the damp from below, as recommended for the greenhouse; and also a good drain under the path, into which the surplus water from the rain-water tank should be discharged by a waste pipe.

The situation of this tank is shewn by Mr. Fortune under the front stage, but that is not the best place for it, as it would there interfere with the flue, and even with hot water pipes, unless placed so low as to be awkward to get at it: indeed, it would be inconvenient at all times to stoop down so low for every potful of water; but a good rain-water tank in a convenient place, inside any plant structure, is half the battle over in growing plants. When hot water pipes are used, the best place for the tank is at one end of the passage, and sufficiently high to get out the water without stooping, and wide enough to allow the largest-sized watering-pot to be used, if necessary, without inconvenience. The boiler, in that case, would be at the other end of the pit; and the pipes would reach to the side of the tank at the front, and there return. Where a flue only is used, the fire-place would of course be placed at one corner of the back wall outside; the flue passing across the end with a gentle rise to the front wall, then on a level under the front shelf, and within three inches of the front wall, and across the other end, to a chimney in the corner of the back wall; a door from behind should be placed at this corner, as near the end as the flue will allow, so as not to interfere much with the back shelves; therefore, the only place left for the tank, by this arrangement, is under the back shelf or stage.

Here I must regret that I cannot give the difference in price between a tank made with bricks and cement, and one made with Welsh slate; but the slate one is by far the best; and they are made so firm now, that they will last for ages, and they are in general use about London. All that I can do on this head is, to recommend to any one who contemplates the erection of a slate tank, to write on the subject to Mr. Beck, of Worton Cottage, Isleworth, near London, who manufactures slate tanks very largely; also plant-tubs, shelves, paths, walk-edgings, and many other things useful in a garden, out of slate. Mr. Beck is also one of our keenest garden amateurs, and would, therefore, be a safe guide to consult on such matters.

In the case of any change or removal, then slate tanks might be undone, and carried anywhere, like the sashes of a pit, where brick and cement ones cannot be removed. The back wall of this pit is built nine inches thick as far as *c*, where it breaks off to four and a half, leaving a nice shelf. The bottom of this shelf should be "headers," that is, a course of bricks laid across the wall, and set in the very best mortar, and very close in the joints; or, what would be better, laid in cement: the reason is, to keep the wall from getting damp by watering the pots on the shelf. That would be the shelf to summer the amaryllises on. The wooden ventilators at *d*, in the back wall, should stand immediately under the wall plate, and be hinged into it, with a good wide ledge in the frame for the lid to fall against, so that there would be no tight fitting, or anything to get out of order; a wooden button would fasten the lid; and for holding it open, nothing is more simple than a piece of wire, of the size of a pen-holder, fastened to the lower side of the frame with a small staple, and long enough to open the lid ten inches or a foot wide, and with a hook-end to fall into another staple in the lower part of the lid—all inside; or thus—when you wish to open the ventilator, you first turn the button, open the lid, and place the hook-end of the holder in the staple, and the thing is as firm as Gibraltar.

As the rafters will stand four feet, or thereabouts, apart, you may allow two feet or 30 inches in length, and a foot wide, for each ventilator at the back; half that size will do for the front ones, as we always reckon an inch of air in the front equivalent to two inches at the back, in rough calculations. To open and shut the front ventilators, nothing is more simple than what I mentioned for greenhouse front lights; and all that is said about the flue and fire-place will do here also; no smaller flue than that should be made where there is room.

As the pit is given nine feet wide, and as it is the cheapest and the best way to have the rafters and the sashes as light as possible, I would advise that a support should be placed under each rafter, and resting on the edge of the back shelf, which must be supported from below at the same place; these supports to be round, and two inches in diameter. Besides supporting the roof very firmly, they would be capital to train delicate climbers to; and by running a small copper wire between them, the whole length of the pit, and a foot or so from the glass, these climbers might be trained a long way. A Mauraundya, or Ecce-mocarpus, or Passion-flower, or indeed any half-hardy climber, that would do out against a wall in the summer, might be taken up and potted at the end of September, and trained along this wire its full length, without taking up more room than was necessary for the pots; and no one need be told how handy it is in May, when we are planting out our store plants, to have a full-grown climber at our elbow, to train up at once by the side of a door or window; whereas, by the ordinary way of planting little young things in such places, the half of the season is over before they come to anything.

Mr. Fortune speaks of parting this pit, if necessary, into two divisions; but that would never do. He is one of my personal friends, or I would not use this liberty with him; but he was too much accustomed to grow plants on a large scale, and was never put to hard shifts, like many of us, and, therefore, not always the safest guide in matters of close detail; but, between us, I fully believe his pit may be made the best and cheapest that has ever been recom-

mended to an amateur, and in many cases will be found as useful as a greenhouse. There is a large room for stowage below the back shelf: dry fuchsias, scarlet geraniums, dahlias, and many other things might be kept there through the winter: the little water that would be spilled, in watering the plants above them, could hardly effect them much.

Instead of dividing off a part of this pit for propagation and nursing, by far the best plan would be to make a one or two-light pit at one end of it, six feet wide, and half that in depth; or, say a two-light brick box: the glass of the two should range on the same slope, so that the end rafter of the large pit would do for the small one, and the brick end would form one side of the smaller pit—so that this would be a cheap and very convenient one; but I lay more stress on the arrangement, as I propose to make it. The thing is as familiar to me as cracking nuts; and I am well satisfied that in all our books and magazines on gardening, you will not meet with a better arrangement, or a more simple and easy one to manage; and, as for the durability and cheapness of the whole concern, I shall venture a prediction, that nothing to excel it in all these points shall be brought forward for the next ten years; and I am fully aware of the responsibility of the assertion.

It will be seen below, that I have discarded the tank system altogether for plant culture, such as the generality of amateurs may be supposed to possess. I may say, however, that I think as highly of the tank system as any one, notwithstanding all the blunders it gave rise to. The great difficulty about tanks, is the almost impossibility of getting common bricklayers to construct them properly.

If Fortune's pit is made nine feet wide, according to the plan, and a small pit at one end of it, as I suggest, a recess of three feet will be left behind the small pit. In the angle of this recess I propose the fire-place to be; and to have an open pan boiler over it, large enough to hold eight gallons of water. These boilers are cast at almost all the iron foundries, and cost from 9d. to 1s. per gallon. I believe, for a shilling per gallon, you may get one cast to order with two flanges; one of which to be at the top for a flow-pipe of two inches diameter, and the other flange as near the bottom as they can get it, for a return pipe. The boiler is intended only to supply a constant and uniform bottom-heat for the small propagating pit, by means of a circuit of two-inch iron-pipe, under a covering of slate half-an-inch thick. This way of supplying bottom-heat is fully as good for propagation as a tank; much cheaper, and ten times more simple, for it is impossible it can get out of order. The only question, therefore, with the public will be, will the slate bear this heat? and will the dry-heat so produced be as congenial to the plants as that from a water-tank? There is not the slightest danger on either of these heads, as I shall presently shew. But first let us take a glance at the history of the tank system.

In May, 1842, plans and sections of two contiguous houses, which I had heated by the tank system here (Shrubland Park), were inserted in the *Gardener's Chronicle*; and six weeks afterwards, a paper on the tank system was read before the Horticultural Society of London, from Mr. Rendle, nurseryman, Plymouth; both of us having hit on the plan about the same time. Mr. R. wrote a nice book on the subject soon afterwards, and the thing soon spread over the country like wild-fire. The nurserymen took advantage of the tank system for their propagating-houses, using the tanks with steam-tight covers; and the gardeners applied it

for bottom-heat for all their forcing; some using close covers, and others allowing a little vapour to arise between the joints of the slates which covered the tanks; and the two parties carried on a rattling cross correspondence in the papers and magazines for the next year or two; and the bricklayers increased the confusion by leaky tanks. Cast-iron tanks were then substituted, also wooden ones, some of which were lined with lead; then galvanized iron tanks, which brings down their history to the present hour. In all these cases, hot water was made to circulate in covered troughs or tanks, divided into two parallel divisions, to represent two pipes; but in no case could the heat from these tanks be used for heating the atmosphere of a house or pit and for bottom-heat at the same time, because, if the tanks were heated so as to be sufficient for the house, they must needs be too hot for the pots. Bottom-heat is never wanted above 90 degrees; and even to keep out the frost, an ordinary tank would require to be much hotter than that at the surface; therefore, flues or hot water pipes must always be used where the tank is a medium for bottom-heat. I wish to lay particular stress on the above explanation about top and bottom-heat from tanks, as thousands of pounds have been squandered away on tank experiments. To my own knowledge, a very good new tank was covered with a close wooden cover this very spring; good mould placed on the boards, and good cucumber plants put in at once!!! Of course no heat could pass through deal-boards.

If this number of THE COTTAGE GARDENER had been in existence last December, my friend might have saved ten pounds by simply reading this letter; for he intended to clear that sum with selling early cucumbers, after paying for the expense of his new house, which is an excellent one, with a span roof; for I went to see it, and prescribed the necessary alterations for another start.

Now, I think I shall be able to make my plan more clear to those who know nothing of these matters, for that is the point that I have been aiming at by this digression. It will be plain enough, therefore, that, if bottom-heat is quite regular all over a hot-bed (and seeing that, for the purposes of propagation, the bottom of that bed may be hermetically closed without in any way diminishing its usefulness, but rather the contrary)—it does not signify in the least degree how that heat is supplied—a dry-baked flue would be just as good as an open tank of water under a sealed slate covering; as the effect of dry or moist heat would be the same after the heat passed through the slate. But would the flue be as effectual as the tank? It would not, because the flue would be hottest at one end, whereas the tank would give the heat uniform, or nearly so—besides the inconvenience of getting it cleaned; therefore, a tank is better for bottom-heat than a flue; but any other mode that will supply bottom-heat uniformly, and with as little trouble and risk as a tank, will surely be as efficient in every respect as a tank. The question, therefore, is reduced to this, what is the cheapest mode to supply bottom-heat, which at the same time will be as uniform and efficient as a tank.

I have answered this question in 1843, but not quite in so simple a form; I had no chance, however, of proving the thing experimentally till last autumn, when a boiler which heated two of our stoves here had worn out, and it was resolved to remodel the houses under a new boiler—if you will allow the phrase. The two houses were converted into one, and a bed in the middle, about 40 feet long and 6 feet

wide, that was formerly filled with leaves or bark for bottom-heat, was to be heated from the new boiler in any way I chose. A tank was suggested; but I said no, all I want is steady bottom-heat; I have ample means already for moisture or damp heat when wanted; tanks often leak, and sometimes sediment or dust gets into them, and from them into the boiler (which in this instance is a close one, and cannot be cleaned out every day); so, if you please, I should prefer hot water pipes. But the dry heat will crack your slate coverings, "wont it?" No, if they are not hotter than I want for bottom-heat; and I must keep that down to my own standard by stop-cocks. And sure enough, there they are; and nothing in the world answers better. The flow-pipe is about six inches below the slate, and two inches from the earth; the return pipe dips a little towards the bottom of the boiler, and may be a foot or so from the slate at one end; the slate is an inch thick, to stand the weight of large pots, and is laid across the pit, each end resting on a course of bricks; a pier, made with three or four bricks, is set under the centre of each slate. There is no mortar used to set the slates, but merely laid on dry; and they are a quarter of an inch apart on the edges. Heat rises through these openings as well as through the slate; and to get this heat diffused under the pots, a layer of rough cinders is laid all over the slates, two inches thick; then nine inches of sand to plunge pots in; the sand is watered occasionally, as the heat passes through it readier when damp. Nothing can answer better, and in simplicity beats all the tanks that ever were thought of; for there is nothing to get out of order, and the pipes are a good deal cheaper than a tank of bricks laid in cement.

Now, this is the sort of thing I wish to introduce into amateurs' gardens, for raising their seeds and striking their cuttings, and for nursing all their little pet plants till they are strong enough to stand the greenhouse; two-inch pipes, and half-inch slate for a bottom, will be quite sufficient. That sized pipe will cost about 9d. per foot, and the slate 6d. or 7d. per square foot; and with an eight gallon boiler, at 9d. per gallon, you may heat a much larger pit than I contemplate; and by leaving a couple of inches not covered at the back and front of the pit, heat will rise sufficiently for top use; besides, the boiler being in the angle behind the bricks will be hot there more or less, and the division wall between the two pits will always be hot when the flue is going; and when heat is not required in the larger pit, it must be turned into a shaft over the boiler. All this, or any part of it, may be so modified as to suit any situation.

D. BEATON.

THE KITCHEN-GARDEN.

Savoys.—A sowing of this most useful winter vegetable should be made about the middle of March, and again in the first week of April, so that a succession of good plants may be secured for pricking out when the early potatoes, peas, &c., have been cleared away. The hardiness of the savoy, which defies the severest frosts, and its excellency for the table, at a season when other white-hearted cabbages are scarce, render it one of the most useful of the winter vegetables. It is also excellent food for the cow; and swine are remarkably fond of it. For brood sows and store pigs, mixed with a little warm pollard or meal, it makes a most substantial food. There are several varieties:—the *Drumhead* (excellent for cattle); the *Globe* and *Yellow* varieties; the *Green-*

curled, very dwarf; and the *Sprouting*, or *Feather-stemmed*. The last named, we succeeded in raising by crossing the dwarf Green-curled savoy with a good variety of Brussels sprouts, which has proved a very superb, hardy, prolific vegetable; producing a thicket of little firm-headed sprouts upon the stem or stalks, and a good-sized savoy kind of head on the summit. We recommend the extensive culture of the savoy to both amateur and cottager. The dwarf curled Green, and the sprouting-stemmed, are the two varieties to which we have of late years confined ourselves, on account of their hardiness and prolificness.

SPINACH.—The round-leaved spinach is a good variety for spring and summer sowing; the prickly-seeded and Flanders' varieties for winter sowing. Where spinach is only required in small quantities, the Flanders' variety will answer for both summer and winter. All these varieties are fond of well-pulverised, rich soil, and should be sown thin in drills, from one foot to eighteen inches apart. Keep the rows well thinned out, and if the surface of the earth is kept well stirred with the hoe between the rows, a fine and abundant crop of leaves will be produced.

Tetragonia, or *New Zealand spinach*, is also a useful article where spinach is required in succession throughout the year. One or two plants raised in heat, and potted in April, when the ridge cucumbers are sown, and put out the first week in May, and treated in the same way as the ridge cucumbers, will produce an abundance of healthy leaves, all through the summer and autumn—heat and drought exactly suiting this variety; whilst the other varieties are troublesome to produce fine in dry hot weather, on account of their inclination to run to seed at an early period.

Tomatoes, *capsieums*, *chillies*, *sweet marjoram*, and *sweet basil*, should be sown on a gentle heat; *burnet*, *winter savory*, and *thyme*, should be sown in any spare corner or border; and new beds of *tarragon*, *spear-mint* or *peppermint*, should be planted as soon as the shoots of the old beds have made stems above ground from two to three inches high, which may be pulled up: these breaking off with young fibrous shoots will ensure their growth, if planted on well-pulverised soil six inches apart each way, in rows; and will establish beds of luxuriant plants in a few months.

GENERAL WORK.—Do not allow winter vegetables to grow at random at this season, to rob the soil and prevent more useful summer crops from being sown or planted, for the sake of a few spring sproutings, &c. If coleworts or early cabbages are not plentiful to succeed such articles, they may easily be removed and laid in thick by the heels in any odd corner, to produce sprouts till they can be spared. Full crops of *carrots* may be sown where the soil is at this time properly pulverised; the seed should be well mixed and parted by the application of dry wood-ashes or charred dust of any kind, and sown thin in drills one foot apart at least; with lime slaked by exposure to the air also drilled separate from the seed.

CUCUMBERS AND MELONS IN FRAMES or pits should now be well encouraged, by maintaining a brisk, kindly heat. By whatever means applied, it should be augmented as the season advances and light increases. Caution is necessary in the application or admission of external air; cold cutting draughts must be carefully avoided, as sudden checks lay most surely the foundation of disease and vermin. The admission of external air may be softened by various means; by placing strips of very thin coarse canvas, woollen netting, coarse bunting, dry fern, heath,

furze, spruce-fir, or other boughs or mats, at or near the aperture where the air is admitted. We like to maintain for the next fortnight, for growing plants of either cucumbers or melons; a temperature of from 68° to 72°; and for either, that is setting and swelling fruit, from 72° to 76°, or thereabouts. I need not state how necessary it is to keep up a succession of healthy young plants of both, where there are means for growing them after early potatoes, forced asparagus, &c., &c.

POTATO DISEASE.—Those who have an idea that this pest is caused suddenly by atmospheric influence and electricity, &c., &c., as we often observe by the public press, and may have any suspicion that their crops have been affected, may convince themselves by now searching the base of the young shoots—where they may readily discover the commencement of this, as some would state, mysterious pest (though not exactly mysterious to us), by observing brown punctured spots, which have swelled and burst; as the shoot proceeds, it puts forth young roots, is again attacked, swells and bursts. It is the sudden change of atmospheric influence afterwards which causes so many to suppose their potatoes to have been in the most perfect health up to a certain day or night, and then to have been suddenly struck seriously with the disease: these facts we have for several years been well acquainted with. Though this season, we are happy to state that, the in-door early crops have not been so free from disease for these four years; but by close inspection, among the crops now coming on under the protection of mats or slight hotbeds, and among those in the borders or field, I find, to my sorrow, the old enemy; but not, at the present time, an eighth part so serious as I have observed it for the last three years, in the month of February. It is certain that we shall again be visited by this serious pest; but to what extent, the variation of atmospheric influence will decide.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 19.)

As little delay as possible should be permitted in all planting operations now, as the vigour and strength of trees and shrubs will be materially checked, and their beauty injured, by being moved when vegetation is much advanced; and we cannot expect that such mild and open weather as we have hitherto revelled in can continue through the ever-ungenial month of March. The dry, nipping winds of spring—so wholesome in their general effects, and so mercifully given to disperse noxious vapours and purify the atmosphere—are not favourable to newly-planted shrubs, which require moisture at their roots until they have seated themselves securely in their new residences; and water given by the hand is never so enriching and beneficial as that which the soil and clouds convey. Let everything be now done that has been left undone, therefore; or else wait patiently until the autumn, for little good will arise from disturbing the roots late in the season.

The hornbeam is a very useful and beautiful tree in gardens, and not much considered. There are some situations that might be improved, and made to appear more extensive than they are, by the judicious introduction of this tree, planted and clipped in the form of hedges, and allowed, at the same time, to grow to any height required, with more ease and grace than hedges usually do. I have seen a most beautiful pleasure-ground laid out in this way, and

consisting only of a wood of hornbeam, through which straight walks were cut, crossing each other, and all terminating in one broad walk, which ran round the enclosure. The description *sounds* formal, but the appearance was almost perfect: the walks were covered with a kind of short grass, that seemed never to need the scythe; the shade and shelter appeared to keep everything in order; and there were no rank weeds or luxurious briars to be seen; all was neat, and close, and beautiful; and it seemed to me that neither eye nor foot could tire of those verdant secluded walks. The ground thus planted was a three-cornered piece, and could not have been made into anything bearable without the hand of unusual taste; and very probably, for the first few years, it may have been the ridicule of the neighbourhood; but now it is indeed lovely, and shews what may be done with a little time, a little taste, and a little trouble.

Layers may now be made of roses, evergreens, &c. It is well to keep up a constant succession of useful and beautiful plants, when it can be done with so little trouble; and if we do not ourselves require them, we shall often find neighbours who will be glad to possess a few young plants. Cottagers would sometimes like to decorate their little gardens with a laurel, box-tree, or laurustinus; and they cannot do so unless these plants are given to them; for the poor have nothing to spend upon pleasures; at least every penny ought to be very differently employed in these times of poverty and pressure. If a space in a lady's garden can be spared for the purpose, she might remove the layers, when rooted, to remain till wanted, and there would then be a little nursery of stout, healthy plants, always ready for use.

Perennials and biennials may now be planted for flowering this season. Among the most showy of these useful and beautiful tribes is the hollyhock. In borders, among shrubs, to screen unsightly walls, to fill up spaces where height is wanted, to stand grouped together in a conspicuous spot where striking effect is desirable, these tall, gay, richly-flowering plants are of great value; plant, therefore, *judiciously*, as many as you can. The colours are bright and various. Crimson, and pink, and primrose, look lovely when clustered together, with here and there a deep, rich, dark variety, to give tone and contrast to the group. They should never stand singly, nor should they be placed in little beds, or among smaller plants; but let them enrich and beautify the back ground, and glow among evergreens and trees. Select the colours well: some are frightfully nondescript in hue; but the more decided the colour is, the more pleasing and striking will be the effect. I have frequently been disgusted with hollyhocks; but I know it has arisen from their being stuck in anywhere, without regard to situation, never properly staked, and left to straggle and blow about in wretched desolation, giving an air of wildness and disorder that affected the flower itself. When standing erect, in full leaf and bloom, there is dignity and grace in the hollyhock.

The scarlet lychnis is another gay autumnal flower. It should be planted too. The rose-campion is a very brilliant little flower, and well deserves honourable mention, especially as it blooms kindly in my cold garden, and cheers me when many others refuse to blow. I love its bright blossoms and downy leaves, and recommend it to all who do not disdain the more simple treasures of the border. Sweet-williams, rockets, campanulas, wallflowers, &c., should also be planted now; pinks and carna-

tions too. These last are generally considered so much as florists' flowers, that ladies sometimes feel fearful of attempting their cultivation, unless they can produce *fine* flowers; but let them not deprive their gardens of these fragrant ornaments in their simplest form. A large tuft of the common white pink, and a group of the rich and spicy clove-carnation, may stand fearlessly in any border. Nothing can be more fragrant, and they need little culture. A cottage garden sparkling with these simple but exquisite flowers ever delights the eye; and my untutored taste enjoys a rich cluster of common pinks and carnations far more than the rare specimens I see, treasured singly, screened first from sun and then from rain, too precious to be gathered, and too delicate to touch. I delight in looking at the wonders of distant climates, displayed in the stove and greenhouse; they give enlarged ideas of the splendour and multiplicity of the works of God. The hand that has "weighed the mountains in scales, and the hills in a balance," has moulded every bud, and painted every flower; and the rich and gorgeous creepers and plants of every size and shape, that are cherished in our hothouses, astonish and delight our minds, as the varied gifts of an Almighty Parent. Still I turn to my own simple flowers—to those of THE COTTAGE GARDENER too—and I never feel one wish to give them up for the brightest beauty the hothouse can afford. No! let us cultivate the treasures of our own dear British soil, with thankful and contented hearts. We may, perhaps, see a smile on the countenance of some man of "science," but a rose, a honeysuckle, a clove-carnation, and a sweet pea, will, I am sure, in an instant soothe and silence him.

TO CORRESPONDENTS.

ERECTION OF A GREENHOUSE (*E. H. J. Gravely*).—Our correspondent wishes to know the name of some one who will undertake to put him up a greenhouse, in Sussex, at a cheap rate. Our columns are open for an advertisement in reply.

A NOVICE will find his wishes met, as much as we can, by a Calendar for the ensuing month being printed on the cover of each of the future parts.

LABELS (*Amy*).—Wooden labels painted white, and written upon with a lead pencil, are the cheapest at first; but sheet-zinc is cheap, and we recommend the latter as much neater, far more durable, and accompanied by no difficulty. We shall give more information next week.

LARGE ROVEN LEEK SEED (*Ibid.*).—Has any seedsman this for sale?

SIZE OF FLOWER-POTS (*Ibid.*).—When we speak of a nine-inch pot, or a three-inch pot, or of any other size in inches, we mean that that is its diameter across the mouth. *Thumbs* are the smallest pots made, and are about 1½ inch in diameter.

3-inch pots are the old 60s	11-inch pots are the old 12s
5 — — — — 48s	12 — — — — 6s
6 — — — — 32s	13 — — — — 6s
8 — — — — 24s	15 — — — — 4s
9 — — — — 16s	18 — — — — 2s

FUCHSIA COCCINEA (*Amicus*).—Our correspondent wishes to know where "this first of the family introduced into England can be obtained." We should think of any London florist.

INDEX (*W. R. Smith*).—You are quite mistaken as to this. We are thinking of having half-yearly volumes, and shall give a fresh and uniform index for each.

COPING OF WALLS (*T. H. M.*).—Two or three inches is a sufficient distance for this to project beyond the face of the wall. Much that we have said about the peach-tree applies to the apricot; but you must be more particular in your questions before we can answer decidedly.

RASPBERRIES (*Arthur Greenhorn*).—Your heavy soil will be improved for this fruit by mixing it with coal ashes. Your gardener is right in saying the raspberries should be planted forthwith. Cabbage leaves, or any other vegetable refuse, when thoroughly decayed in a dry place, will form leaf-mould. Sow *calceolaria* seed now.

CONVOLVULUS MAJOR (*M. T. Gloucestershire*).—To grow the best varieties in perfection, the seed should be sown about the middle of this month, in a gentle hotbed; the seedlings pricked out three or four together in small pots, and placed in a cold frame, or other shelter, to harden them for finally planting in a warm border at the end of May. They like a rich, light soil, and plenty of water to the roots in dry weather.

BUCK-WHEAT AND CANARY (*Ibid.*).—The proper time for sowing the first is early in May, and for the canary early in March.

LONGEST CUCUMBER (*G. M., Gateshead*).—Duncan's Victoria, and Allen's Victory of England, have both been grown more than two feet long. You can get them of any London seedsman.

SOAP-BOILER'S ASHES (*J. L., Preston*).—There is not much good in these as a manure. They contain a little charcoal, less saline matters, and much earth. Spread it over your ground thickly, and dig it in, chiefly to add to the staple of the soil, but thickest where you purpose planting potatoes.

CUPREA PLATYCENTRA (*An Amateur*).—You may cut down your plant, taking care to leave a few young branches, with leaves on, towards the bottom. The cuttings you may put in pots, in the same manner as the cuttings of the campanula (see p. 258), only they will require a bell-glass over them; a goblet, or tumbler glass, would answer nearly as well. You might try a few in glass phials, in the manner described by Mr. Beaton, in the 20th number of this work.

COAL-ASHES (*O. I., Hampstead*).—Your clay soil will be greatly benefited by the application of coal-ashes, if they be thoroughly mixed with it. They certainly have no tendency to promote canker in fruit-trees, and are not prejudicial to vegetables, if incorporated with the soil. Coal ashes are composed chiefly of sandy matter (silica), chalk, gypsum, oxide of iron, with salts of potash, soda, and magnesia, most of which are beneficial to plants, and all help to render heavy soil more open and friable. If you drain your garden you will adopt one of the best preventives of canker, and one of the best means of securing good crops.

TO COVER A TARED PALING (*Un Ami, Deptford*).—You cannot plant anything against this that will look so well all the year as fresh ivy. You need only put in some plants close to the fence, and about three feet apart, and nail them to it at first. Afterwards they will take care of themselves. You cannot grow anything between your rows of potatoes, which are 18 inches apart; but you might put a broad bean here and there, not nearer than two feet from each other, in the rows. Between your rows of peas, 30 inches apart, you might put a row of spinach.

SPANE HOSRANDAY (*W. T.*).—You will find, we think, the pith of Dr. Yellowly's statements in the *British Farmer's Magazine*, No. 4, *New Series*.

RHODODENDRON CUTTINGS (*An Enquirer*).—These will not always succeed—it is the worst mode of propagating the rhododendron. The wood of the cuttings should only be half ripe. Plant them in a large pot, only two-thirds filled with sand, and the leaves so deep down in the pot that they may be covered with a sheet of glass placed over its mouth. Put the pot within a frame, or other place, where there is a gentle heat. Wipe the glass dry every morning, and keep the sand moist. If this be neglected, the cuttings always perish. Layering is a much safer mode of propagating the rhododendron, but grafting the best of all.

CLIMBERS ROUND TREE-STEMS (*L. B.*).—At the foot of each of your two trees on your lawn plant two climbing roses. At the foot of one put *Ruga* and *Felicite perpetuelle*; and at the foot of the other *fermis* and *Princesse Louise*. Graft your crab-tree with the *Kerry Pippin* and the *Lamb Abbey Pearmain*. They are two of the best favoured and best keeping apples, and are good crops.

LIME (*S. M.*).—Do not mix this with your compost; it decomposes the ammoniacal salts contained in all dungs, and thus drives off some of their most valuable components. Lime mixed with tanner's spent bark will hasten its decay, and help to break it down into vegetable mould, which will be a good manure. Mix the lime and bark well together: one bushel of the lime to four bushels of the bark, and turn the heap over three or four times.

EVERGREEN ROSES (*A Mendiponian Subscriber*).—As you wish to cover the sheltered east end of your house with these flowers, plant, close to the wall, *Brunoni*, reddish crimson; *Felicite perpetuelle*, and *Princesse Louise*; the two last have creamy white flowers, but are very different in character. Very fragrant roses, suited for the border before your windows, are *Riego*, a hybrid China, carmine; *Rose du Roi*, a damask perpetual, crimson; *Prince Albert*, a hybrid perpetual, red-lake; *Jaune Desprez*, a noisette, reddish yellow. Do not be misled by the name to think "evergreen" roses have their leaves on all the year; and do not expect, with an east aspect, to have roses in such perfection as when they enjoy a better exposure.

SOB-BREAD AND MANGOLD-WURTZEL (*A Dutch Tulip*).—Our correspondent says, that "Sau-brod"—for our name appears to be a corruption of the continental one—is sometimes called by our northern neighbours *Wald-rubi*, or *Forest-root*; and that *Mangel-wurzel* means "poverty, or want-root." If "A Dutch Tulip" knew the kind-hearted gentleman who sent us the brief comment he refers to, he would never have fancied, for a moment, that he wrote aneeringly.

DON'S GARDENER'S DICTIONARY (*Cruciferae*).—It is imperfect. Paxton's Botanical Dictionary will be of more use to you, and is cheaper. It is not the largest book that always has the most useful information in it. We will consider about the vitality of seeds.

SUPER-PHOSPHATE OF LIME FOR ROSES (*An Enquirer*).—You will have seen an answer as to the proportion of this salt you should use in compost. By itself, a tablespoonful sprinkled round each bush will be enough.

LANCASHIRE PIG-FEEDING (*W. X. Glynde*).—The statements relative to this subject, at p. 245, were sent to us by Mr. Saul, of Nutby Cottage, Garstang, Lancashire; and we believe him to be a practical man. We have communicated with him on the subject, and we will publish his reply.

MANY ORDER QUESTIONS have their answers ready, but must be postponed, from want of room, until next week.

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WEEKLY CALENDAR.

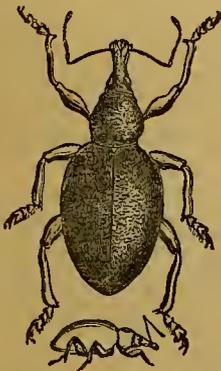
M D	W D	MARCH 15—21, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
15	Th	Red Ant appears.	Coltsfoot.	16 a 6	2 a 6	0 0	20	9 5	74
16	F	Frog spawns. [heard]	Nodding Daffodil.	14	4	0 57	21	8 47	75
17	S	St. Patrick. Pied Wagtail's spring note (4 or Mid. S. Pss. LOUISA ROEN 1848. Edward K. W. Saxons.	Shamrock.	11	6	1 51	22	8 30	76
18	SUN		Great Leopard's Bane.	9	7	2 39	23	8 12	77
19	M	Black Currant leaves.	Yellow Star of Bethlehem.	7	9	3 23	24	7 54	78
20	Tu	Linn. & Hort. Soc. Meet.	Dog Violet.	5	11	4 2	25	7 36	79
21	W	Benedict. Sun's declin. 0° 19' N.	Bulbous Fumitory.	2	12	4 37	26	7 18	80

ST. PATRICK, the tutelar saint of Ireland, was by birth either a Welchman or a Scotchman; but being seized and carried into slavery by some Irish chieftain, he by that means became acquainted with the ignorance and heathenism of "the green island." Escaping by the aid of certain sailors, he was by them landed in France, and thence travelling into Italy, he was admitted into holy orders by Pope Celestine about the year 430. He was commanded to evangelize Ireland, and no man ever addressed himself more earnestly or unwearingly to his allotted work. He ordained clergy, preached in every district, founded schools, and was charitable even beyond his means. He died on this day about the year 464. The legend accounting for the shamrock being worn on this day is, that when St. Patrick could not make the Irish believe in the unity of the Trinity, he plucked a sprig of shamrock, and won their assent by asking—"Is not the unity of the Trinity as possible as for these three leaflets to be united on one stem?" It is usually believed that the trefoil or clover is the shamrock, but we rather incline to consider it identical with the wood-sorrel. This is gratefully acid and eatable, but that is not the case with trefoil; yet Spencer, writing in 1596, says, when the Irish "found shamrocks, there they flocked as to a feast for the time."

EDWARD, KING OF THE WEST SAXONS, was stabbed on this day, in the year 978, at Corfe Castle, in Dorsetshire. The murder was perpetrated by command of his step-mother, but her "sin found her out" whithersoever she fled; "her days brought a series of mental horrors, and her nights were more fearful than her waking hours."

ST. BENNET, or BENEDICT, was an Italian ecclesiastic of great austerity, chiefly famous for founding the order of Benedictine Monks. He died in the year 543.

PHENOMENA OF THE SEASON.—Resuming our notes upon the circumstances attendant upon the germination or sprouting of seeds, and having shewn how essential for this are warmth and moisture, we will now proceed to shew how equally necessary is the presence of air. No seed will germinate if so enclosed that the air, or at least one of its gases, oxygen, cannot get to it. When healthy seed is moistened and exposed in a suitable temperature to atmospheric air, it absorbs from it the oxygen only. This power of separating one gas from the others appears to reside in the skin of the seed, for old seeds lose the power of absorbing the oxygen, and, consequently, of germinating; yet they will frequently germinate if soaked in a solution of chlorine in water,* chlorine being a gas which has the power of attracting hydrogen from water, and releasing the oxygen, doing so in the case of seeds within their skin, as well as withoutside. Humboldt and Saussure have also shewn that the application of chlorine to seed accelerates its germination; and cress seed, which, under ordinary circumstances, requires some days to complete the process, they found effected it in no more than three hours, when moistened with chlorine. This absolute necessity for the presence of oxygen is the reason why seeds will not germinate if hurried beyond a certain distance from the earth's surface; and why clayey soils often fail of having a good plant, an impervious coat of clay enveloping the seed, and preventing the air's access. How oxygen operates in aiding the seed to develop the parts of the embryo plant we cannot even guess—we only know that most seeds have more carbon (pure charcoal) in their composition than other parts of their parent plant; that the oxygen absorbed by the seeds combines with a portion of that carbon, and is emitted in the form of carbonic acid. These are the attendant phenomena; but we can penetrate the mystery no farther.



MARCH	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
15	Fine.	Fine.	Fine.	Fine.	Frost.	Showery.	Fine.	Showery.
Highest & lowest temp.	66°—30°	54°—46°	55°—45°	53°—30°	36°—27°	57°—45°	58°—34°	52°—30°
16	Fine.	Fine.	Fine.	Fine.	Snow.	Showery.	Fine.	Rain.
	65°—35°	56°—44°	57°—29°	53°—38°	34°—19°	55°—31°	59°—42°	44°—36°
17	Showery.	Cloudy.	Fine.	Cloudy.	Frost.	Frosty.	Fine.	Rain.
	56°—41°	56°—43°	64°—31°	44°—30°	42°—16°	46°—25°	61°—26°	42°—36°
18	Fine.	Fine.	Fine.	Fine.	Frosty.	Frosty.	Fine.	Fine.
	56°—40°	52°—35°	67°—36°	46°—35°	43°—27°	47°—23°	61°—27°	54°—27°
19	Showery.	Showery.	Cloudy.	Cloudy.	Frosty.	Frosty.	Fine.	Showery.
	54°—34°	46°—40°	55°—41°	51°—36°	44°—25°	47°—23°	59°—37°	53°—29°
20	Showery.	Showery.	Fine.	Rain.	Frosty.	Snow.	Cloudy.	Rain.
	57°—39°	48°—38°	63°—45°	45°—23°	40°—16°	41°—20°	57°—41°	53°—30°
21	Cloudy.	Showery.	Fine.	Fine.	Fine.	Cloudy.	Fine.	Showery.
	54°—48°	49°—34°	59°—47°	50°—31°	49°—31°	46°—35°	59°—26°	50°—25°

INSECTS.—Let our readers take a candle and lantern, and look out late of an evening during the remainder of this month, and in April, for the Red-legged Garden weevil (*Otiorynchus tenebricosus*), by some naturalists called a *Curculio*. They are found feeding upon the blossom-buds of apricots, nectarines, peaches, and plums. They devour the centre of those buds; and then, if numerous, which they frequently are, and pressed for food, they will eat the leaf-buds, and even the bark of the young shoots. They bury themselves by day in the earth, close to the foundation of the wall to which the trees are trained, likewise round the stems of the trees, and, most probably, in chinks of the bricks, and other dark hiding-places. When recently hatched they are clothed with a delicate yellow down, forming little irregular spots upon the elytra or wing-cases; but the spots soon disappear, when the weevils become of a shining black, inclining to a pitch-colour. The antennæ or feelers are twelve-jointed, long, thin, and bent so as to form a knee or angle; the feelers have a slender club at their ends, formed of four downy rusty-coloured wings. The thorax or breast part is sometimes of a dark chestnut colour, and covered with fine granules or humps. The legs are of a reddish-brown colour. Our cut represents this insect of its natural size (five or six lines long), as well as much magnified. The larvæ, or maggots, of these weevils are nearly as destructive as their parents. They are buried at the foot of the fruit-tree walls, and especially in the earth just round the stems of the trees. This earth, and that along the foot of the wall, should be stirred with a fork in the autumn, covered thickly with salt, and then well soaked with ammoniacal liquor from the gas-works. Mr. Curtis, in his *British Entomology*, says that these maggots were so abundant in 1836, in Lord Eldon's garden at Encombe, in Dorsetshire, that they extended their ravages from the roots of the wall-fruit-trees to those of every vegetable; as well as those of the currants, gooseberries, strawberries, and raspberries.

* Chlorine is an unbreathable gas, obtained by pouring oil of vitriol upon common salt. This gas has the power of taking hydrogen gas from water, and thus producing oxygen; for water is composed of hydrogen and oxygen united together.
† This insect has no wings; and the wing-cases are united together by a fine membrane.

THE insect world is much more active than is usual at this early period of the year. Some weeks since, we saw the Peacock and Sulphur Butterflies gambolling in the sunbeams, and in a few weeks we may find their caterpillars—those of the first-named upon the leaves of the stinging-nettle, and those of

the Sulphur Butterfly upon various species of the buckthorn. The Skipjack Beetles (*Elater sputator* and *Elater lineatus*) have also been seen—those parents of some of our worst garden foes, the wire-worms; and the young shoots of some of our China roses, on a south aspect in Hampshire, were thickly

infested with the Green Fly (*Aphis rosæ*) as early as the last week of February. Now, these are all admonitions to us that we must be more than ordinarily watchful, and early in adopting measures to meet and vanquish our insect foes; but before we proceed to give some directions on this point, let us record that God has set us an example even here, and well illustrating Paley's observation, that "our's is a world of compensations." Though the Aphis has been permitted to be with us thus early, equally unusually early in its coming has been the Lady-bird (*Coccinella*). This friend of the horticulturist—this devourer of the Green Fly—was rather numerous in our garden on the 22nd of February.

For one of the modes of getting rid of the Green Fly, we refer our readers to Mr. Errington's directions under the head "FRUIT GARDEN," in our this day's columns. It is a mode equally applicable to plants in stoves, greenhouses, and frames. In these, however, it has the disadvantage of causing much extra labour, by the cleaning afterwards required for the glass, which is sprinkled and stained, unavoidably, by the liquor employed.

Fumigation is the remedy to destroy the Green Fly, the Red Spider, and the Thrips, usually adopted under glass structures; for in these the smoke or fumes employed for the purpose can be confined and kept about the insects until it has done its work of death. The same may be effected, though less perfectly, with plants growing out of doors, if these are covered closely with matting down to the ground, and the fumigating matters are then placed underneath the covering. In all fumigating operations it must be borne ever in mind, that if carried to excess they will kill the plants as well as the insects. This warning seems to be particularly necessary to enforce on our readers just now, since one amateur, in a letter just received, informs us that he considered fumigating with sulphur (brimstone) meant burning it, and confining its smoke within the hothouse. He has purchased more accurate knowledge dearly, for he adds, "The grapes had set very well, and had attained some size, but the leaves shewed symptoms of the disease we had last year. Supposing this disease to be caused by some insect, I thought fumigating would prove a remedy. Accordingly, we gave them an atmosphere of the best sulphurous acid! It has killed every leaf and bunch; destroying, besides, all the tender plants I had in the house. I have heard since of more than one person who has done as I did, with the same result." We certainly did not think this possible; however, so it is, and we can scarcely add more to the warning afforded to the above record of the error. Our correspondent is quite right in stating that, by burning brimstone in his vinery he placed his grapes in an atmosphere of sulphurous acid; and if any one wishes to see its consequences upon vegetation, let him put a few green

leaves and a red rose under a tumbler, and then put within it a common brimstone match previously lighted. The leaves will speedily have their colour changed to a yellowish brown, and the rose will become white. Even dead vegetable matter is violently acted upon by the acid thus produced; for we all know that straw bonnets are bleached by shutting them up in a box in which some sulphur is burning.

Sulphur fumigation is employed chiefly for the destruction of the Red Spider, and it is the most effectual remedy known at present. In the vinery, peachery, or other houses liable to the appearance of this insect, sulphur fumigations should be applied three or four times annually. For a house thirty feet long and sixteen feet wide, six ounces of flowers of sulphur are sufficient for one fumigation. The best mode of proceeding is to dissolve a lump of soft soap, about the size of a walnut, in warm water; adding to this some clay-water, made by working a lump of clay in warm water until it becomes of the thickness of thin paint, and then mixing in the sulphur. When all are well blended together, apply the mixture, by means of a brush, upon the side of the flue, or over the return pipe, if hot water is used as the means of warming. This must have been previously heated. The best time to apply it is late in the afternoon, just previously to closing the house for the night.

Tobacco Fumigation is adopted to destroy the Green Fly and the Thrips. The two best modes of proceeding we have found to be the following—the one being the suggestion of Mr. Mills, the excellent gardener of Baroness de Rothschild, and the other of an innkeeper at Ipswich:—

"According to the size of the place to be fumigated," says Mr. Mills, "one or more pieces of cast iron, one inch thick and three inches over, are made red hot (pieces of old tiles, such as are used for covering smoke flues, would probably answer equally well); one of these is placed in a twenty-four sized pot, on which is put the quantity of tobacco considered necessary to charge the structure with smoke sufficient to destroy insect life. To fumigate an ordinary-sized eight-light house, I use three heaters, and three twenty-four sized pots, which I have placed on the front flue or walk; one pound of strong tobacco is put on the three heaters in equal parts, and this I find sufficient to fill the house, so as to destroy all the kinds of insects that perish by fumigation. The system has these advantages: the tobacco is so quickly consumed, that the house is completely filled in a very short time, and but little smoke can escape before the insects are destroyed; the pure heat from the iron heaters prevents injury from gas, and as no blowing is required there is no dust, it being only necessary to put the tobacco on the heaters, and leave the house."—*Gardeners' Chronicle*.

The innkeeper's is a very simple mode of fumigating plants, and especially adapted for those in frames, and under hand-glasses turned over them for the purpose:—

"Dissolve a table-spoonful of saltpetre in a pint

of water; take pieces of the coarsest brown paper six inches wide and ten inches long; steep them thoroughly in the solution; dry them and keep till wanted. To fumigate, roll one of the pieces into a pipe like a cigar, leaving the hollow half an inch in diameter, which fill with tobacco; twist one end, and stick it into the soil; light the other, and it will burn gradually away for an hour or more."

Tobacco smoke should not be admitted to fruit-trees when in bloom, nor when the fruit is ripening, as it imparts to them a flavour.

Another excellent authority, Mr. Cameron, has given the following very useful directions how best to proceed in using this fumigation:—

"If the house is not filled too rapidly with smoke, and is allowed to reach the glass without coming in contact with any of the plants, it then descends as it cools, without doing any injury. Plants fumigated in frames, or under hand-glasses, are most liable to be injured by the heat of the smoke, if not done cautiously. Foliage should be perfectly dry when a house is fumigated, and should not be syringed till next morning. If plants are syringed immediately after fumigation, many of the aphides will recover even where they have dropped off the plants, a fact which any one may soon prove after fumigating a house."

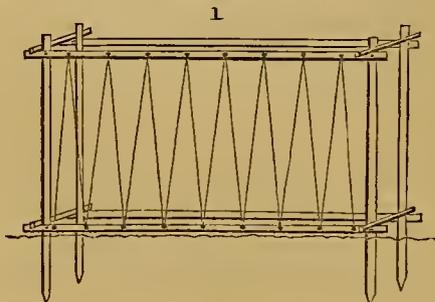
SEVERAL correspondents having complained that the ink for writing on zinc labels, of which we gave the recipe, washes off, we think it best to state thus prominently, that the fault must be theirs, for we know it to be indelible. The first thing to be done is to scour off all the oxide from the face of the zinc to be written upon: the best mode of doing this is by means of sand paper; and the scouring should be continued until the zinc is quite bright: it is then ready for the writing. A correspondent (*S. C., Preston*.) describes, as follows, the mode in which he brightened his zinc for labels; and the one he inclosed had the name of a flower upon it, in slightly raised characters, as black as printers' ink:—

"More than two years ago I was using several galvanic batteries, and wrote upon some of the zinc for labels with ink similar to yours, but the writing soon washed off. It then occurred to me that the zinc was used as it came from the shop, and the writing had been upon the oxide that covered the surface, and not on the zinc itself. I then held the heads of some of the labels in one of the battery jars, containing sulphuric acid very much diluted, until they were well cleaned; shook them in a little clean water, and when dry wrote upon them. Inclosed is a piece of one of the labels, which has been exposed two years in the open air: on scraping it with a knife, you will find a chemical action has taken place between the zinc and ink, and produced a raised manuscript, which would probably be legible for ten or a dozen years. The only secret, is to have the zinc perfectly clean when written upon."

NUMEROUS have been the inquiries made of us for a substitute for pea-sticks. To the dwellers in most country districts such an inquiry may appear very unnecessary; for in these, the underwood of hazel plantations (the best of pea-sticks) may be obtained

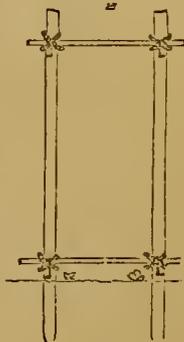
in cheap abundance. A very different condition of affairs exists in the neighbourhood of many great towns, and even in some rural parishes. We have known the pea-sticks for a moderately-sized garden cost thirty shillings; and these, we know, will be only in part available for a second season.

For the purpose of obtaining a more durable, and, therefore, less expensive supporter for peas, we have had a kind of hurdle made, with only a top and bottom bar, and these bars pierced with holes, six inches apart, as represented in the annexed drawing, No. 1. To prevent confusion in this, we have only



shewn one of the hurdles as pierced with holes, and with string passed through them, but in practice both are strung alike.

Each hurdle is five feet long, and three feet wide between the two bars; for tall-growing peas the width might be more. The upright ends are made of deal, and are four feet long and two inches square. Eight inches of the lower ends are charred and pointed, because they have to be fixed in the ground. The side bars are two inches wide and one inch thick, also of deal, sunk into the uprights, and then nailed. The peas are sown in double rows, with a space of nine inches between the rows. The hurdles



are strung with stout wetted string, because when dry it becomes tighter, and rain does not slacken it afterwards. A hurdle is put outside of each row of peas, and is made steadier by being tied to the one next to it, and the whole made firmer by being united to those opposite, by pieces of wood about one foot long, tied as shewn at No. 2.

The plan may not answer, or the string may require to be put on differently, so as to support the peas more effectually; but we state the experiment we are trying to enable others to do the same this season if they please. We pay six shillings per dozen for our hurdles, unplanned; and we have painted them over with coal-tar.

We are glad at being obliged to give four extra pages this week, for the purpose of answering our numerous correspondents.

THE FRUIT-GARDEN.

PEACHES (DRESSINGS FOR).—We hope that those of our readers who cultivate the peach have attended to spring-dressing the shoots, as advised at p. 157 of this work. We deem it necessary, in addition, to apply a little sulphur at this period; and our practice is, to beat up three ounces of soft-soap in a

gallon of warm water, and thicken it with as much sulphur as it will carry, or nearly so. With this, by the aid of a brush, we draw a band or stripe on the wall between every two shoots, or, at least, up every vacancy, from the bottom of the wall to the top; taking care to apply a very broad band at the foot of the wall all the length. Now this, although appearing tedious, is soon accomplished. One man, in half-a-day, will go through the trees of most amateurs, which, in general, do not extend beyond four or five. This treatment we have proved, for several years, to be an almost complete antidote against the red spider; indeed, we may safely affirm that this destructive pest has never been worthy a consideration after carrying out this plan.

GREEN FLY.—Whilst on the subject of peaches and nectarines, we may as well advert to the period of foliage (leafing) which is fast approaching. We mean not here to discuss the process of disbudding; that must be deferred for a week or two; but it is to the approach of another insidious enemy, which is at once to be dreaded and most cautiously guarded against, viz., the Aphis, or green fly, as it is more commonly called, to which we would now draw attention. People often make great lamentations over the nakedness of their peach or nectarine trees; and often we may see some long, stalky, besom-looking things called peaches, with nothing but a lettered label to give them significance. The idea immediately strikes the mind, that it is scarcely worth while to build such an expensive thing as a wall for the purpose of producing a few terminal clusters of fruit. Now, if the manager happens to be a mere rule-of-thumb practitioner, people say that his proceedings have not been conducted on scientific principles; if a bookish person, why then, of course, theory has ruined his peaches. However, "wisdom is justified of all her children." About two summer's since, we were looking over some of the best gardens near the great metropolis; and, in the course of our trip, called on an old friend—a practical gardener of some forty years' standing. Now, this man was, in most respects, a good gardener; yet, strange to say, had not learned fully to recognise the immense amount of mischief of which the aphides are capable, as to the peach and nectarine. On our remarking to him that his peaches and nectarines were very foul, he, to our great astonishment, answered that it was *only* the common green fly. We could scarcely bring ourselves to believe that such an experienced person, as we knew him to be in most other respects, could so lightly esteem so powerful an enemy. For our own parts, we can say, that we have known several cases in which a fine wall of peaches and nectarines were so injured by the aphides in three or four days, that not even the most experienced gardener could restore them, and clothe the nakedness caused by this insect's devastations, without having recourse to budding. Now, it is pretty well known that this insect is sure to make its appearance, in a greater or less degree, at the time the young wood shoot begins to fully develop itself. This, then, occurs immediately on the heels of the blossoming period. Tobacco, either by its smoke, or in the form of tobacco-water, is known to be totally destructive of this fly, if applied judiciously. Tobacco is somewhat expensive, and this is a misfortune for gardeners, for in the present imperfect state of horticulture we grieve to admit that nothing more efficient is known; for great is the grievance of a thorough fumigation to the ladies of an establishment; their organ of smell, somehow or other, being more sensitive than that of

the male sex. But we must give some good points of practice in this critical juncture. We have for years adopted a practice of applying tobacco-water the moment we can discern one green fly. Half a pound of strong and fresh shag tobacco will make one gallon of powerful liquor, provided some soap-suds, instead of water, be used. We dress our trees two days successively, and, to this end, we brew enough at first to carry out the two applications. The tobacco-water, then, is made with as small a quantum of water as can be managed; the remainder is made up with common soap-suds, when the liquor is cooled down, and strained. As to the mode of application, we merely choose a still afternoon, if possible, but, above all, a dry one, for rain would carry away some of the properties of the mixture. Read's syringe is the instrument to use, and it requires some nicety of handling to economise the liquor, and to dispense it equally to all parts of the trees, taking care that the shoots near the collar are well soaked, for the fly is generally most injurious here; and this point, the collar, constitutes, as it were, a nursery of succession growths, whereby the fabric of the tree, in case of damage, is repaired. The liquor, then, is darted right and left, until every portion of the tree, or nearly so, is wetted; but, as some portions will of necessity escape, we repeat a similar dose on the succeeding afternoon, with equal care; and few are the portions that escape by this practice, as we have proved by many years' experience.

This, then, with the sulphur mixture previously described, will secure any peach and nectarine trees from their two greatest enemies, during a whole summer. It must not be inferred, that these things are of necessity very tedious,—the tedium will be found principally in our long detail; but we were unwilling to leave any point open to misconception on a subject of such great interest to thousands as well as ourselves.

APRICOTS.—We trust that every protection has been afforded to the apricot blossom, as well as to that of the peach. It is now high time that all pruning of this valuable fruit (which had not been completed on account of the difficulty of distinguishing the blossom-buds) should be completed. We find it the only permanent plan to tie down on the main shoots all short-jointed young wood, instead of the old plan of spurring back, which is notorious for causing barrenness in the end. On examining the older shoots of the apricot at this period, with a searching eye, small circular patches of eggs, about as large as the middle section of a marrow-fat pea cut in two, may be found. These, we have always understood, are the eggs of that most destructive caterpillar, which gathers the apricot leaves in bunches to form a shelter, and thence commits great devastations, doing more injury to the apricot, probably, than all other causes together. Everybody must be familiar with this caterpillar; and we advise the trees to be closely searched directly, and the eggs crushed. They are of a whitish cast, about the colour of the materials of a wasp's nest; and they look precisely as if they had been pasted on.

DOUBLE-BEARING RASPBERRIES.—Those who have not spring-dressed this useful autumn fruit should do so forthwith. Such dressing consists in weeding or spudding out all superfluous suckers which are spreading too far from the original stool, taking away all the weakest. Indeed, a couple of strong shoots are enough for this kind; for as these have to be cut down within about four inches of the ground, each will produce a strong sucker or more; and out of

these suckers, in May, about a couple of the strongest must be selected to produce the autumnal crop. Of this course we shall speak in due time. They should receive a slight top-dressing as soon as the pruning is completed.

STRAWBERRIES.—Those who have not yet dressed their strawberry-beds must immediately do so, cutting away all dead or decaying leaves, in order to permit the new crown to develop itself in freedom. Any weeds which may have become mixed up with the crown should be carefully cut out with an old knife; and all waste runners which may have escaped last season's operations must be cleared away. If weeds exist between the rows, let them be hoed and raked off; but on no account dig between them. This is always wrong in spring, and but a doubtful operation, at the best, in the autumn. Our plan is, after thoroughly cleaning them, to give a good dressing, two inches in thickness, of half-decayed leaves between the rows; and if the plants are rather weakly, some soot will be of great benefit: this might be strewn among the leafy material previously to application; and the mass turned and broken thoroughly.

ALPINE STRAWBERRY.—Some prefer raising and treating this autumn fruit as an annual; for our parts, we think it quite as eligible to grow them by the runner system, provided the runners are *very young*, and receive high cultivation. An elevated bed or row should be selected, in a thoroughly open situation; and as permanency of moisture is one of the great essentials in their culture, some old cow manure may be incorporated with their soil. If the soil is sandy, it will be well to apply some sound loam also. They should by no means be planted too thickly, or the fruit will not be worth eating: much prejudice has been created against them in this very way. To have them fine, no two plants when full grown should touch; they will, therefore, require to be at least fifteen inches apart. We plant three in a patch, six inches apart each way, and then allow half a yard between the patches.

APPLES: *The American Blight.*—All applications of a general character, that is to say, administered by the engine or syringe, should cease after this period, provided any strong materials are used in the liquor. We have some trees infested with this insect, and we have applied, by means of the syringe, a mixture composed of soft-soap (six ounces to the gallon), plenty of sulphur, and as much lime as it could carry, adding plenty of urine. Every chink in the trees appears to be filled quite full with the mixture; and having given three distinct applications, we feel flattered that these insidious enemies have all died in prison. We now cannot see the least vestige of them, but if any should accidentally peep forth, we shall at intervals use a little train-oil on the top of a narrow-pointed brush, and this we trust will exterminate them.

THE FLOWER-GARDEN.

LAYING-OUT VILLA GARDENS (*continued*).—Third principle—*Appropriation*. By this word is meant, in laying out grounds, the making use of scenery in the immediate neighbourhood of the garden, but not belonging to it. In the country, this principle may be made use of to a considerable extent, with the happiest effect; especially where the villa is situated on rising ground. A part of the ground of the garden, the farthest from the house, should be considerably raised, and a covered seat placed on it, so as to com-

mand the best and most pleasing views. At the same time, the observers of such views should not be exposed to the gaze of neighbours or passers by; therefore, the rising ground should be planted with shady trees and shrubs, leaving open only such points as will display the desired objects to the best advantage. This principle of appropriation may, in such happy situations as will admit of its use, be applied so as greatly to increase the attraction of the garden, by appropriating the surrounding scenery and objects to your own gratification. Bear in mind, also, in planting, to make the most of the views from the windows of the dwelling-house, as well as from the seat on the mound; concealing, by planting, all unpleasant objects, and leaving open the views that are pleasant and agreeable. An old tower, the distant village church spire, a peep at some mansion embosomed in woods, a noble single tree, or a lofty mountain,—and, above all, a view of the ocean, a river, or a lake. These are all objects, a view of which ought to be religiously preserved open as much as possible. The eye of true taste will never be weary of dwelling upon them, varying as they do under the different lights and shades. Some of these objects look best during the rising of the sun; others when he is in his meridian glory; whilst a third class delights us most during the mild lustre of the decline in the heavens of that source of light and heat. For ourselves, we most admire scenery bathed, as it were, in the beams of the setting sun, burnishing as they also do the mountain tops, the windows of the mansion, and throwing a refulgence over the whole appearance of Nature; leading the mind to look up with thankfulness to that Divine Being who has given us such a beautiful world to live in. To realize such scenes, and to make the most of them, is an art well worthy of your careful study. Observe them well from every point before you plant a tree, and arrange accordingly.

The above observations relate chiefly to villas in the country, far from noise and smoke. In or near large towns, alas! the great object is, generally, to shut out all views whatever; and for a very good reason—because the views are too often so confined, blocked up, and interrupted, that the eye is glad to rest upon the more pleasant sights at home in the garden. In such cases, seclusion must be the order of the day. Yet there are exceptions; as, for instance, where a villa is so situated as to command a view down a street, or into a square, or of a handsome church. It would be unpardonable not to take advantage of such favourable situations.

Fourth principle—*Lawn*: its extent and form. Though the use of a grass lawn in very small garden plots was objected to, on account of the trouble and expense of keeping it in good order, yet, in large gardens, it should be introduced pretty freely. The owner or occupier of a moderately-sized villa garden is supposed to have the means to keep his flower-garden and the lawn, forming the greater portion of it, in perfect order. The extent of it depends partly upon the taste of the occupier and the situation of the garden. If the owner is particularly delighted with shrubs and beds of flowers, the lawn may, with perfect propriety, be reduced to meet that requirement. On the contrary, if he prefers a more open space, the breadth and length of the lawn may be extended with equal propriety. In both cases its extent may be apparently made greater, by judiciously concealing its extreme boundary with clumps of shrubs, beds of roses, or other flowers; causing it to steal away out of sight from different points of view. To do this

who like it. A cot, with three or four frisky rabbits in it, is as great a preserve in the eyes of a school-boy as the largest game-cover is in the estimation of those of maturer age. Let no one, therefore, despise those beautiful and useful summer plants; but let all those who possess the means set about their cultivation, by sowing the seeds any time between this and the middle of April; for I have no great faith in the old rules, which prescribe certain days for particular operations. Any rich light compost will do to sow the seeds in: but one-half rotten leaf-mould, with the other half equal parts of good garden loam and very old dry cow-dung, will make a better compost when it is desired to bring them to an extraordinary size.

If they are intended to produce the largest combs that high cultivation can obtain, and that in a few months, there is no time to be lost; and they ought to receive the highest stimulus from the first moment of their existence. Yet very good combs can be reared without all this trouble, a good deal depending on the seeds. All the gardening in the country will fail if the seeds are not of the very best sort. They have already reached the highest degree of perfection, and, like many other plants under similar conditions, they evince a strong tendency to degenerate. Seeds should, therefore, be saved only from the best flowers; and of these we shall speak when they are in flower. Sow the seeds thinly in a small pot, and cover them slightly; place the pot in a strong bottom-heat—a cucumber-bed will do; and as soon as they are up, keep them within a few inches of the glass; the nearer they are kept to the glass without touching it until the flowers appear, the dwarfer they will be in the stems, and the wider across the combs. Plenty of air and a strong moist heat are also necessary to their full development. When the seedlings are two inches high, they will require to be most carefully parted, and to be each potted in very small pots in the richest compost, to be watered with warm water, and to be shaded from the sun the first three or four days, till they take a fresh hold: very little air, indeed hardly any, is necessary for them during these few days; after that, if all has gone on well, they will stand the most nutritious diet in the shape of strong liquid-manure, which had better be kept in a little watering-pot, or bottle, inside the frame, to be always ready at the same temperature as the bed.

It is found in practice that *liquid-manure* made by mixing three or four kinds together, is better than either alone: say pigeon or fowl-dung, cow and horse-dung, a handful of guano, and two handfuls of soot—all great stimulants singly, but much better when mixed. Of course it is not necessary to get all these for one mixture to water any plant; I only mention the articles in a general way, to shew that gardeners put much stress on a variety of diet for particular pet plants. A small cask for holding liquid-manure would be of the greatest use for many garden waterings; and if the strong odour were kept down by a little sulphuric acid, as mentioned at page 189, it would be both more agreeable to use and richer for the plants. The strong pungent smell produced from manures is their spirit, just as alcohol (pure spirit) is that of wine. This dung-spirit they call ammonia; and it stands to reason, if the spirit is retained it will make the manure so much the stronger. Therefore, they salt down this ammonia with the sulphuric acid, as we do the bacon with common salt; and this they call fixing the ammonia.

This is a beneficial discovery of recent date, and of which there is no doubt at all about the result. Now, liquid-manure, with the spirit retained in it, will make cockscombs grow as large again as if these were grown with rain water only. But here a great difficulty arises, for no one can say how strong liquid-manure should be, because there is no standard for comparison, and some plants take it as strong again as others. Cockscombs and balsams, after once they are freely growing, will take it as strong as most pot plants; but, to be on the safe side, it is best to reduce the strength by adding one-half rain-water to it, and to let it first settle, so that no thick sediments get into the watering-pot; and it should be of the colour of well-made coffee, which is perhaps the best criterion that can be given of its strength. The colouring matter is part of the dung used in a finely-divided state, and will add much to the richness of the soil, after the effect of watering is over; and to prevent an accumulation of this small sediment from clogging the soil too much, the general rule is to give alternate waterings with plain soft water. This is a good rule, but, like many other good rules, it has been of late years carried rather too far, by drawing off the liquid-manure in a clear state, and leaving some of the best parts of the nourishing matter along with the thick sediments; as if the clearest could not be made strong enough to kill any plant. It is not the colouring matter of liquid-manure that is apt to hurt the roots of plants, but the essence or salts of ammonia, when in excess; and these may be drawn off as clear as you please, and yet be more dangerous than the brown liquor. Another wrong idea has got abroad on this subject, owing to some ill-directed experiments, as to the capability of plants to take up colouring fluids by their roots. Some are of opinion that roots can only take up water in a clear state; but there never was a greater mistake. Some plants have an extraordinary capacity in this respect, and will take up water in such a thick muddy state, as no one could believe who has not tried the experiment. To prove this, take a balsam full-grown, a gourd, or, indeed, any thirsty coarse-growing plant in a pot, and in the height of summer withhold water from it till the leaves will drain it of all its previous fluids, which you may know by their drooping for want of the necessary supply; for it is of little use to try to get water into a plant or vessel that is already full. Then give it a good dose of muddy water, or water coloured with some dye, and watch till the leaves are distended and quite erect—a sign that they are in possession of your fluid, whatever it may be. Now cut off a branch, and ten to one, if the wound will bleed at all, but it will drop fluid of nearly the same colour as that just given to the roots. This I have seen over and over again; and, therefore, I am quite satisfied coloured liquid-manure is highly useful to plants; and no refined philosophy will ever make me act, or advise others to act, against the evidence of my senses. So let our cockscombs be watered in the good old-fashioned style at any rate, and you need have no misgivings about using nothing else till the combs are full-grown. You will then have arrived as far as art can go with them; and after that, plain soft water will do to keep them on their legs.

But we have got them only in their first little pots yet, and just strong enough to stand the sun without a shade. As soon as their roots appear on the outside of the ball, they must have another shift immediately into the next sized pot. If their

roots are once allowed to mat together before they are shifted, they will push up their flower-heads prematurely, and come to nothing. The grand secret to get them to full perfection is, never to allow them to suffer any check. A chill from cold water, or too much cold air, or to suffer from want of water, if only for a few hours, to stand too far from the glass, or their roots getting too confined, will assuredly prevent a full development of their crested heads, for which only they are admired. To guard against accidents, therefore, it is a good plan, where there is room for them, to grow a few more than you intend to flower, and keep the best only.

BALSAMS.—These do not require half the care needed for the cockscomb. If you have seeds of good varieties, they are as easily reared as any plant we have; and in a good window as well as anywhere. They will come into bloom sooner in a hotbed, and make larger plants if grown in a warm pit till they come into blossom; but there is no occasion to put off their growth for want of such conveniences. Besides, they are apt to get up weakly in a close warm pit; and if the seed-pots were put into a cucumber-bed, they would require to be removed as soon as the balsams came up, or, which would be better, to be placed behind where the air is admitted. They are great feeders, and, after they are half-grown, will take rich liquid-manure three times a week; and should be shifted into larger pots as soon as they fill their present ones; but they are not so particular in this respect as the cockscomb.

Balsam seeds are of the medium size, and may be covered one-fourth of an inch thick. They will come up in any light rich compost, and ought to be thinly sown, say an inch between the seeds each way, otherwise the seedlings would be too much crowded before they were fit to be potted separately into small pots. A kitchen window will be a good place to get up seedlings of many plants, after this time; and the balsams will do very well that way. By sowing them early—that is, before the month is out—there will be full time for them to make fine plants; and the slower they grow at first, provided they do not want for nourishment, the more likely they will be to make good specimens. When the seedlings are two inches high is the time to pot them into single pots. The soil for the first potting ought to be one-half very rotten dung or leaf-mould, and the rest loam. At the other pottings they may have the dung not so rotten; and I have seen beautiful balsams and cockscombs grown in almost one-half fresh horse-droppings, and green turf chopped quite small with a spade. However, without strong heat to keep them fast growing, such very rich compost would be too strong for them. Therefore, the best way is to give them high feeding with liquids after they fill their pots with roots. There is another way of assisting them, which would kill many plants, and that is, to pot them each time one inch deeper than they were before; and the stem will push out fresh roots each time, and so feed these stronger, and take larger pots. Cockscombs would do the same under very good treatment, but they are so easily checked that I did not recommend it; and it is never a safe plan to try experiments with plants that are of this ticklish nature.

POTTING PLANTS.—After this time, all plants that require it may be potted with safety. Spring-potting is done very differently from summer-potting, for now the old soil is to be shaken off, the roots looked to and pruned, &c.; whereas, in summer, we merely

turn a plant from one pot to another. But on both heads I shall enter more fully in my next.

D. BEATON.

THE KITCHEN-GARDEN.

THE TURNIP.—Any one having a small warm sheltered spot to spare, may obtain early turnips by now sowing some of the small-growing short-top varieties; such as the early Dutch and early Stone, or American Red-top, the latter being generally considered the best, and coming on the quickest at this season of the year.

For succeeding as a second crop any of the summer crops, such as peas, beans, &c., those who have a pig to feed should always sow in May, on any spare spot of ground, a good variety of Swedish turnip, as a seed bed, to transplant from. It is a most valuable food for either pig, bullock, or horse, particularly if boiled before it is given to them. There are many other good varieties of turnip for those who have stock to feed; but for the amateur and cottager there are none better for general purposes than those we have named.

SALAD HERBS: *American Cress.*—A prolific, hardy, wholesome annual, worthy the attention of all who are fond of a well-flavoured salad. A small spot sown about the middle of August will furnish abundance of leaves all the autumn, winter, and the following spring.

The Normandy Cress.—A good curled leaf, hardy variety, also succeeds well in the open air; and, if sown in a sheltered spot about the middle of September, will produce leaves throughout the later months of autumn, the winter, and early spring. Both this and the American varieties should not be cut like small salad, but should be gathered by picking the leaves. The seed should be sown thin, and the bed kept well hoed out. The American is a very wide-spreading variety; on a good soil from six to nine inches should be allowed from plant to plant; and the Normandy, from three to four inches apart.

The common *mustard* and *cress* are so easily cultivated, and so well known, that it is hardly necessary to mention them. Persons without any garden at all may grow salads for the table all the year round, by sowing the seeds of these in small pans, or even on flannel or cloth, and placed anywhere, so that it is kept moist, and brought to the light when about an inch high to gain its natural colour, without which it would have but little flavour.

Radishes, in addition to the foregoing, may be produced both in spring and autumn, by sowing first the early short-top frame radish, and then the red and white turnip radishes to succeed them.

Endive, too, is a plant of easy culture, and worthy the attention of those who are fond of winter salad ing. If a pinch of seed is sown in July, and another in August, it will furnish plants to put out in succession, at intervals, until the end of October. The close short-leaved curled variety and the new hardy Batavian are the best; the latter seems to stand through any winter, and turns in close and white-leaved, like a Silician lettuce—indeed, we find it a good substitute for lettuce in winter and the early spring months.

The *red beet*, as an addition to salads, is also much esteemed by many on account of its saccharine flavour, either baked or boiled. It may be eaten with other salads, or alone. It is a root of easy culture; but should not generally be sown earlier than

the middle of April, on account of its liability to become sticky and of a bad colour.

We are now fully entered on a most busy and interesting part of the year; much of the future season's produce from the earth depends upon the energy and persevering industry of the present time. We must adopt a good systematic plan, and continue it on the most favourable opportunities. Delays are dangerous when once all matters are pretty well prepared for sowing and planting. We always find there is a time or opportunity for performing all things, if it is duly embraced. Some degree of watchfulness is now necessary for insuring a healthy prolific produce. The depredations of birds, slugs, snails, wire-worms, and other vermin obnoxious to the cultivator, must be duly attended to, or disappointments will take place, although a good preparation has been made, by procuring healthy seeds or plants.

Sow successions of *cauliflowers* and *celery*; the main crops of *onions*, *parsnips*, *carrots*, *parsley*, and *pot-herbs*.

Re-plant and re-arrange *herb-beds*, earth up and stick *peas*, embracing every favourable opportunity of hoeing and scarifying the surface of the earth. Sow everything *in drills*, which tends to much convenience for early surface-stirring.

Capsicums sow in a gentle hot-bed, under a frame; they will even do under a hand-glass on a warm border, but then the seed must not be sown until the beginning of May. The seed must be covered a quarter of an inch deep. When the plants have attained six leaves, in about a month after sowing, they must be thinned to four inches apart; and those removed planted also in a moderate hotbed at a similar distance, being shaded from the meridian sun, and moderately watered until they have taken root. During the whole of their continuance beneath a frame, air must be admitted freely; and, as May advances, they must be accustomed gradually to an uncovered situation, by lengthened absence of the glasses during the day, and by degrees leaving them open of an evening: this prepares them for their final removal at the close of that month or early in June. Those raised in a border, beneath hand-glasses, must also be thinned as directed above; and those removed planted in a similar situation, or, in default of hand-glasses, beneath a paper frame or matting. The same may be adopted for the plants from the hotbeds, if all other conveniences are wanting. When planted out finally, they are to be set two feet asunder, screened from the sun, and watered every other evening until they have taken root. The watering must be continued in dry weather throughout their growth, which greatly improves their vigour and the fineness of the fruit. Liquid manure is highly beneficial to them. In hot weather they can scarcely have too much moisture. G. W. J., & JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 20.)

HOWEVER cold and comfortless the month of March may be, we know that spring has opened; and we can wait with hope and patience for the soft showers and balmy gales that come with this cheering season. We know that sunshine—delightful as it is—will not bring forward the bud and bloom, without some

clouds and storms, some drenching rains to reach the deepest roots, and thereby to enrich and beautify the highest bough. How often we stand at the window, enjoying the rushing sound of heavy rain, while we listen to the wild note of the blackbird, and feel the delicious scent of the moistened earth; and we say, "Oh! what a beautiful rain this is for my garden; how my plants will grow; and I am sure I shall find my seeds up in the morning." We see and feel the benefit of the storm among our plants and trees; let us reflect that *we* also are trees in "a garden enclosed;" that we also need dark and cloudy days, and pelting storms; that continued sunshine would peril our souls; and that the wisdom of the great Husbandman calls forth the north wind and the south to blow upon his garden, "that the spices thereof may flow out."

The lovely blossoms of the nut-trees have come forth very early this season. The female blossoms are so small, that unless we look closely we can scarcely see them; but the little scarlet flowers are bright and glowing on the dark brown leafless twigs, and they give an early interest to the copse and hedge-row. Every hour we see something new and beautiful springing up around us; and we can scarcely step without pressing down a sprouting herb or plant. The soft silky buds of the "palm" (sallow) are beginning to glitter; and there is a peculiar redness in the appearance of the woods and plantations, that foretells the opening of the buds.

In all open, sunny, dry situations, hardy annuals may be sown. My garden is so dark and damp that I cannot touch it yet with spade or rake; and even the commonest annuals never thrive kindly in it. But the time is come to prepare the ground, to refresh the borders, trim the edges, and give a neat and pleasing look to each department of the pleasure-ground. The soil should be raked finely where seeds are to be sown; there should be no rough lumps of earth; it should be opened with a small hand-fork, so that the under soil may not be hard and dry, and then the surface broken as small as possible, and raked till it is smooth and even. In cold situations, annuals had better not be sown till April; little is gained by putting them into the ground before it is warmed by the sun; and they are frequently destroyed by slugs, if they lie long in the ground. I have often been so anxious to get my seeds in, when other friends were thus employed, that I could not wait till the proper time arrived, and my seeds consequently seldom grew; and when they did, they gave birth to seedlings poor and weakly. Even now I have little inducement to cultivate these lovely varieties, for they require sunshine and warmth much earlier in the year than I possess them, and this I ever regret.

With the new and beautiful annuals, whose Latin names I can neither pronounce nor understand, I have nothing to do. My delight is in the old-fashioned, sweet, and glowing flowers of my childhood, whose names are as simple and familiar to us as those of our brothers and sisters; and whose real and genuine loveliness and fragrance few of the more highly-prized varieties can possibly exceed.

Sweet peas and mignonette should abound in every garden; their sweetness is unrivalled; and they are often associated in our minds with days and circumstances that give them a double charm. A very few years ago, these lovely annuals were the pride of the lady's garden. Our mothers loved them; and they seem, like the rose and honeysuckle, to belong to the home of our childhood, and to

twine round the memory of those whom we see no more. Very beautiful are the new annuals I sometimes see; but the delight with which I turn to the old ones, convinces me that they are the sweetest and prettiest after all.

Mignonette should be sown "broadcast" over every bed and border, and lightly raked in; so that it may come up in every vacant spot, and not in patches only. It grows even in gravel, and though not so rich in flower, it is sweeter than when placed in better soil. In towns, where there are gravelled enclosures before the houses, mignonette would do well; if scattered over the loose untrodden parts, and if turned under ground with a fork, when the flowering season is over, will spring again without further care. I have seen and enjoyed mignonette in these situations; and when the windows are opened in summer evenings, we may feel something of country sweetness even in a street. It also does well in pots and boxes; and is extremely well adapted for town on this account. Let it be sown as early in the year as possible, because it is very slow in coming up. In cold situations this must not be done till April. Continue to sow occasionally till the beginning of July; and this will secure a long succession of bloom.

Sweet peas should be sown in circles, when placed among other flowers, with the sticks planted firmly in the middle of the ring. A fortnight or three weeks after sowing the first ring, let an outer one be sown; so that each clump of peas may have a succession of flowers. Sow sweet peas round every tree and stake; against every bower, and wall, and hedge-row. Twine them round the pillars of the porch; and place them as near as possible to every window: their fragrance never overpowers. If mice or slugs are apt to attack the seeds, lay a little soot on the surface of the soil, when they are planted.

Our gardens are now becoming full of interest. Every day we shall find something to do, to watch, and to delight in. It seems but yesterday that we were making all things ready for frosts and snows; and now, in a few short days, all is glittering, cheering, sunshine! The birds are again preparing their rich summer songs; the rooks are once more quarreling over their comfortless nests; and the stillness and dreariness of winter has ended. Let us consider this. We have all seasons of trial, of depression, of difficulties; when the future seems dark and hopeless. We are too ready to say, "All these things are against me." But if "our eyes waited upon the Lord our God," as those "of a maiden look unto the hand of her mistress," our times of trouble would soon pass by; sunshine would gladden our hearts again; and we should realize that comforting assurance, that "though weeping may endure for a night, yet joy cometh in the morning." While we stand gazing on the reviving beauties of the natural world, let us remember that the winter and summer of our earthly course are but the varied workings of a Parent's love, intended for our good; and that the storm and the sunbeam are each as necessary to our spiritual growth as they are to the growth of the tree and the flower.

ON LIQUID-MANURE TANKS.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

THE situation in which the cottager or farmer is placed must, in a great measure, determine the

most economical mode of constructing liquid-manure tanks. If he is situated in a calcareous district, he will naturally prefer lining them with flints, set in mortar, or with concrete (made of one part lime and three parts of gravel). If he is dwelling in a clayey district, he cannot do better than follow the directions given by a Middlesex farmer, Mr. W. Dickenson, who remarks (*Journal R.A.S.*, Vol. 8, p. 580), "Having well considered where the liquid is to be used, as well as where it is made, and resolved upon the most convenient situation, I have a hole dug full seven feet in diameter and twelve feet deep, the bottom being shaped like a basin, and well rammed with a little water into a good puddle. The construction of the tank is commenced by the bricklayer forming a circle with bricks (four-inch work), round an opening of five feet, leaving a space behind the brickwork to be fitted and rammed well in with clay puddle by the labourers, as the building is worked up; no mortar being used with the bricks, or anything else, till the dome is to be formed. Mortar or cement is then required; the arch is then arched in, a man-hole being left in the centre of each tank, and covered with a three-inch yellow deal cover (two-inch oak would be better)." One of these tanks, containing 1000 gallons, costs £2 17s 6d, in the following items, the calculation applying to those persons who employ their own horses and carts:—

	£	s.	d.
2 Farm labourers, each half a day.....	0	2	0
2 Labouring lads, each one day.....	0	3	0
1 Man, one day.....	0	2	0
2 Others, one day.....	0	5	0
1 Bricklayer, one day.....	0	4	6
1 Labourer, ditto.....	0	2	6
3 Horses and carts, drawing away quarter of a mile, half a day.....	0	4	6
8 Feet three-inch deal for cover, at 5½	0	3	8
Labour and nails.....	0	0	10
Lime and sand for man-hole.....	0	2	6
900 Place bricks.....	1	7	0
	£2	17	6

I have, in one instance, made a tank of rough bricks, set in a compo made of one part of melted pitch (this is worth about 7s per cwt.), mixed with six parts of *dry* sand, and applied hot. In some parts of Bedfordshire they use this compo only as a lining to their liquid-manure tanks (they make this lining two or three inches thick); it is quite water-tight. There is, in truth, little difficulty in forming a tank for this purpose, for even porous bricks speedily become saturated with the fine mechanically-suspended matters of liquid manure; and then the escape of even the mere watery portion entirely ceases.

TO CORRESPONDENTS.

GLADIOLUS TO PLANT NOW (B.B.B.).—The best to buy in a dry state now is *Gladiolus Natalensis*, but you may purchase any other sort established in pots, at a little higher price.

CACTUS (*A Young Inquirer*).—You say that this (but you do not name the species) looked green in the winter, but that it now looks "sadly," you not having given it any water for the last three months. There is no fear of your cactus; you treated it perfectly right; the best way to moisten the soil gradually is to place the pot in a saucer of warm water now, and keep the saucer supplied as fast as the soil draws off the water, till you observe the dry soil on the surface turning damp; then the ball is uniformly damped throughout, and will not require any more water for the next week or ten days, and by that time the plant will be getting full of juice, and turn stiff as formerly.

TO MAKE A STANDARD OF A TRAINED NECTARINE (*Amateur, Endfield*).—Your nectarine will require the flattened shoots to be placed in the form of an ordinary standard, by means of sticks; this done, the only pruning necessary will be to thin away crowded shoots, whether young or old, and to shorten back the young wood of last year about one-half its length. If any of the points are so long as to be unwieldy, they may be cut back to a couple of eyes or buds. Good staking, however, is the chief point.

PEAT SOIL (*J. Hunter, Rochester, Northumberland*).—You ask us "how to make most productive" your garden, the soil of which is peat? but you should have said whether your peaty soil was of a fresh or sphagnum character, or old black decomposed peat. Whatever it be, *thorough drainage* must precede all planting and cultivation. The peat, if of a raw character, should be burnt over first. It should be cultivated in a sort of "lazy bed," that is, elevated much above the ordinary level. Aimal manures will be little required until the staple is corrected; the main business will be to correct its acidity by lime, and to solidify the staple by adding plenty of sand, or sandy soil, or even burnt ashes of any kind; and when somewhat mellowed, and the superfluous water passed away, an application of marl, or pulverized or burnt clay, will be highly beneficial. After these processes, almost anything may be grown well on it, provided it is cultivated in high beds. In this advising, we have assumed that it is a damp half-decomposed peat.

HALF-HARDY ANNUALS (*E. B. and A. Z.*).—You may save the trouble of transplanting your annuals, by sowing the seeds thinly in small pots, and as soon as they come up giving air on all fine days. As the season advances, pull off the lights entirely in cloudy weather, until the plants are hardy enough to bear the full sun; then, at the time you finally plant them out, divide the ball of earth in each pot into four quarters, without breaking the earth. Plant them out in moist weather, and they will soon establish themselves. *Zauschneria Californica* may be had at the Pine-Apple-Place Nursery (Messrs. Henderson's). *Phlox Drummondii*, the *Portulaca's*, and such like half-hardy annuals, should be sown now in a gentle hot-bed; and as the seeds of most of these are rather dear, and you may wish to have as many plants as possible, you had better sow them in shallow pans in light sandy soil; and when they come up, and have got four or five leaves each, transplant them three in a pot four inches wide; and as the seedlings advance in growth, gradually harden them to endure the open air previously to planting them out. If you wish to grow some of them in pots, and flower them either in a window or greenhouse, you must root them into larger pots, and keep them in the frame till they show flower. We cannot conceive the reason why you have hitherto failed, unless you have sown them too deep, or kept them too far from the glass, or watered them too freely, any of which mistakes would be fatal to your seeds; or, perhaps, your soil has been too heavy, and your seeds have rotted in consequence. Avoid those mistakes; procure your seeds from a respectable London nurseryman; sow them in shallow pans placed within six inches of the glass; transplant early, and water carefully, and only when they are dry, and you will certainly succeed.

CLIMBERS FOR N.E. WALL (*M. D., a Subscriber*).—The following creeping perennials will thrive and flower against your N.E. wall:—*Lathyrus latifolius* (Broad-leaved everlasting Pea), pink and white varieties; *L. grandiflorus* (Large-flowered everlasting Pea), pink; *L. Californica* (Californian everlasting Pea), purple; *Convolvulus infatatus* (Iofated Bindweed), rose; *Clematis vitalba* (Traveller's joy), white; *C. flammula* (Sweet-scented Clematis), white; *C. viticella rubra* (Red vine-flower Clematis), and a double purple variety; *Eccremocarpus scaber* (Rough Eccremocarpus), scarlet; *Jasminum officinale* (White Jessamine); *Early Dutch Honey-suckle*, red. Twelve kinds will cover this wall (60 feet long); some of them are shrubby, but all hardy enough for your purpose. To hide the washing ground, plant the tallest Lombardy poplars you can procure; plant them thickly, and they will soon block up the unpleasant view; you may trim off all the branches as high as the wall, and cover it with ivy.

MOULDINESS IN HYACINTHS (*Alfred*).—We never saw the hyacinth rot; but, from the dread in which the Dutch florists hold it, and from your own account of it, it must be most destructive. The sum of all that has been recommended for a cure, in Holland, is to cut out all the diseased parts, and to keep the bulbs dry, but they seldom flower afterwards, and are only kept to produce offsets. The only way likely to arrest the progress of the disease in your case, is to cut out all the diseased parts, and apply hot sand immediately to the wounds, repeating the process three or four times in succession as soon as the sand cools; the heat of the sand to be, that you could hardly bear it on your hand. The mouldiness is a kind of fungus, and this may kill it.

HOW TO TREAT SEEDS OF UNKNOWN PLANTS (*G. T. Spool*).—Pedlar's Basket is a local name unknown to us; we never heard of it, and cannot say how you must treat it. Sow half the seeds in any light soil in a well drained small pot, and cover them according to their size—half an inch being deep enough for the largest seed in pots; keep them in the warmest place you have got, and if they come up they will soon tell what temperature they like best; if the place is too hot for them they will grow slender and spindly; and if too cold, they will look pinched, and will hardly grow at all. This is the rule with gardeners when they meet with seeds of which they know nothing. When they thus find out the nature of the plants, if they think well of them they sow the other half of the seeds, and give them the proper treatment. The musk seed we take to be a *Mimulus*; if so, it is quite hardy, and the seeds are very small. Manage them exactly as we recommended for calcicolous seeds. Although this musk—for there are many kinds of musk plants—is the easiest to manage when once established, it often dies in a seedling state. If you rake a damp shaded patch in an open border, and scatter half the seeds on the surface, and sprinkle some dry soot round the patch to keep off the

slugs, you will be as likely to rear the musk plant that way as in a pot. It is an excellent window plant, and will grow in any soil, and takes abundance of water when growing. When it dies down, keep it dry for a while, and with the heat of a kitchen window, and watering, you can force the roots to grow again any time in the year.

DRIVING BEES (*J. Marcer*).—You ask our advice as to driving your bees from a straw hive into one made of wood, and we reply:—Keep the bees in the straw hive, allow them to swarm, and put the swarm into the wooden hive. Removing bees from one hive to another is a very difficult process, and always attended with great risk; by doing it, the brood must *certainly* be lost, and probably the bees also.

MANDRE TANK (*An Amateur Farmer*).—The best answer how to make this most economically, will be found in a communication given in a preceding column, from Mr. C. W. Johnson.

PARSNIP-SOWING (*H. White, Hailsham*).—We beg to return our thanks for the pumpkin seed. For information respecting parsnip culture, see pp. 237 and 237. Good-holding rich land, well trenched and pulverized, and the seed sown in drills, is the best known system. For long carrots, open sandy, loamy soil, well trenched, the seed well incorporated and parted, by rubbing together, with wood ashes or dry charred dust, and a small portion of air-slaked lime sown in the drills, is the best treatment at sowing time for this useful root. The distance of the drills should be one foot apart at the least, and two inches deep, if the soil is dry and healthy; but if cold and damp, one inch, or a little more, is enough to cover the seed.

SURFLUS SEWAGE (*Rev. C. W. L.*).—Why not make a larger tank; or sink an old hoghead into the ground, communicating by an overflow pipe with your tank, which you find too small in wet weather? If you cannot do this, you had better pour the surplus over your compost heap, rather than give it to your crops in wet weather.

OLD ORCHARD GROUNDS (*Ibid*).—This, which has not been before broken up for 60 years, you have now planted partly with potatoes; and you ask what you shall do with the remainder, "either for the family or the pig?" If not overshadowed with trees, sow half of it with carrots and the other half with parsnips. If shaded, nothing will do well; but we should try cabbages.

POISONING BIRDS, &c. (*Ibid*).—We never could find this answer in the summer time, the birds are then too well fed to eat poisoned wheat. It is not the noise, but the glittering of pieces of tin tied to a string on an easily-heading stick that chiefly scares birds; therefore, we fear that your iron links will be useless. Your hints about the index and table of manures shall be considered. You cannot grow strawberries between your pyramidal trees six feet apart. You say you have already planted a currant-tree between each two; and even this will interfere with the necessary root-pruning. Superphosphate of lime is best applied to any plant whilst in a growing state.

POTS FOR TUBEROSES (*C. G.*).—Pots four inches wide by four inches deep, inside measure, are the proper size for a tuberose. The flowering depends more on the strength and ripeness of the root than on the size of the pot. Light rich soil, or indeed any good garden mould, will grow them.

CORAL OR LOBSTER PLANT (*G. G. H.*).—You can manage to flower this (*Erythrina laurifolia*) just as you propose; viz., keeping it dry and from frost all the winter; and, any time in March or April, taking it to a light warm place, where it can be steamed occasionally; not actual steam, we hope, but soft warm vapour from some apparatus.

AGAPANTHUS (*Ibid*).—This requires no more heat than will keep the frost out. Rich soil, and plenty of water in summer; to be placed in a warm situation out of doors. The *Amaryllis formosissima* is the only one of the family that could stand your treatment with impunity. We said we never saw one of them dead.

WEEKLY NUMBERS (*T. H., Sheffield*).—These are always published a week in advance of the directions they contain. That published on the 1st of March contained the gardening applicable especially to the seven days after that day.

SEEDS FOR EMIGRANTS (*Crucifera*).—The length of time during which seeds retain their vitality is exceedingly different in different kinds. The seeds of raspberries have grown lately, after being buried deep in Cornwall from the third or fourth century of the Christian era. Some will keep a thousand years; others, not so many days; but for all practical purposes, and especially in reference to emigration, they will retain their vitality long enough; and may be removed from one country to another, and keep well for a year or two after arrival. By all means take as many kinds of our best fruit, vegetable, and flower-seeds to Australia as you can find room for. We packed seeds for the first settlers of Adelaide, which went safe. They were well dried, and put in dry brown paper packets. The peas, beans, and other heavy seeds, were put into stout cotton bags; and the whole were put in thin layers between the folds of blankets, in a rough box, and never looked at till after the voyage. The grand secret is, to have them and the paper completely dry, and not to exclude the air altogether from them, except when in the tropics. After you are beyond the Cape of Good Hope, they ought to have abundance of air, if you could give it them. Many seeds will perish soon if hermetically closed, as in bottles, jars, &c.

ORCHIDS FOR A GREENHOUSE (*J. P. C.*).—There are no air plants that will live in a greenhouse. By "air plants" are meant orchids, that will live suspended in baskets or on logs; but there are some that will live in greenhouses in pots—such as the cypripediums (ladies' slipper plants). Pot these in rough peat and sandy loam, watering freely in summer, and very moderately in winter. Also, the British orchids, which are very interesting, may be cultivated success-

fully in those houses; taking care to use a similar soil to that in which they are found growing in their native localities. *Zauschneria californica* is a very fine useful plant; as also *Epiphyllum splendens*. The price of the first is 2s. 6d., and of the other, 5s. You may obtain them both by applying to Mr. Appleby. *Lupinus affinis* is not yet to be had of any nurseryman, that we know of.

FUCHSIA SPECTABILIS (*Ibid.*).—This has been exhibited at the exhibitions at the Botanic Garden, Regent's Park, and at Chiswick, and at the Horticultural Society of London's meetings, in Regent-street. It is a first-rate species, and is very desirable. We are glad to find you have such a good collection of geraniums, and shall be happy to receive your list, and advise you what you ought to add to it.

PRICE OF FLOWER-POTS (*A Constant Reader, Brixton*).—The size of the pots you mention for carnations to bloom in (16's) is the proper one. The price of *sixteens* is about 4s. the cast. A cast is the number of pots made out of a certain quantity of clay. *Sixteens* is the number of the cast you inquire about; so they will cost about 4d. each. If you go yourself to the pottery, you may perhaps obtain them a little cheaper. Any respectable pottery will serve them for you. Ashfords, of Stockwell, is near your place; and they will let you have them as good and as cheap as anybody else.

COVERINGS FOR WALL-TREE BLOSSOMS (*W. N.*).—The coverings are to be kept on only at night, and during cold winds or sleety weather in the day-time.

ALOE (*Ibid.*).—We cannot tell what aloe you have received in blossom from Madeira; there are more than forty species. You cannot do wrong, however, by planting it in a tub, as you propose. Put plenty of drainage at the bottom; six inches of broken crocks will not be too much. Let the soil be two parts sandy loam, one part sand, and one part peat-soil, adding and thoroughly mixing with the whole a little leaf-mould, or thoroughly decayed manure.

POSTRAY (*T. Martin*).—This is not an imaginative age; and we find the majority are against the admission of poetry; but it will not be excluded altogether.

BEST SOIL FOR POTATOES (*Beta*).—A light, well-drained, well-pulverized, moderately fertile, and not recently manured soil, is that which produces good-flavoured mealy potatoes. Your soil is too rich; dig a coating three inches deep of your road-scrappings into a plot, and see how the potatoes do there. Why grow late varieties? We have given them up.

LIQUID MANURE (*Mary Marshall*).—Any fertilizer dissolved in water is a liquid manure. The best we can recommend to you are the three following:—One ounce Peruvian guano dissolved in a gallon of cold water; sheep's dung a quarter of a peck, and water seven gallons; sulphate of ammonia a quarter of an ounce, water one gallon. Accept our thanks for your refreshing, kindly-spirited note.

COMMON CLEMATIS (*Ibid.*).—This can be propagated by cuttings, but it is much more easily done by layers. Bend one of the last year's shoots down to the ground, peg it three inches below the surface, so that a joint be thus buried, and cut half through the shoot just below the joint on the side next the stem. Keep the earth moist, and it will soon root. The best time for this layering is in July, when the young shoots of the year are about five inches long. Do not break that off which comes from the joint pegged under ground, but let two inches of it appear above the surface.

IVY PRUNING (*Ibid.*).—You may prune this now. Do not ever clip an evergreen; you mutilate the leaves, and the wounded parts become brown and unsightly.

ROSE PRUNING (*W. H. G.*).—We will insert your note next week. **CHLOROFORM FOR STRIPTING BEES** (*M. P.*).—A teaspoonful upon a piece of blotting-paper, placed for five minutes flat under the hive, and the entrance stopped, would probably be enough; but you would soon find out whether the stupefaction had been brought on by that quantity; and if not, might repeat it. We advise you not to play unnecessary tricks with these colonists; and the opinion we give is not founded upon experiment.

SEEDS OF ANNUALS FOR MARCH SOWING (*J. W. Lloyd*).—See our "Flower Garden," in this number.

CUTTING-DOWN RASPBERRY CANES IN APRIL (*E. G.*).—This is applicable only to the autumn-bearing variety.

MANURING WHEN TRENCHING (*Ibid.*).—If you are going to sow tap-rooted vegetables (carrots, parsnips, rad beets), turn the manure in with the bottom spit. If you are about to sow or plant fibrous-rooted vegetables (cabbages, &c.), dig the manure in with the top spit.

SOOT AND SALT FOR POTATOES (*Ibid.*).—The best mode of applying this compost now would be to sow it over the surface, and then hoe the ground over. Your other questions shall be answered in our next number.

MONTHLY CALENDARS (*Novice, Kimber's Cottage*).—We will consider your suggestion as to printing this not upon the cover of the parts. We may transfer them to the last page of each month's last number. Thanks for your note on bee-feeding; it shall be published.

RUBARB (*P. Wallingford*).—To check this running to seed, make the soil about it very rich, by means of pig or other strong dung. The more leaves you can make a plant produce, the less inclined is it to form flowers. Break the seed stems down as fast as they appear.

STOVE FOR A SMALL GREENHOUSE (*J. B. H. Abergele*).—The best stove for heating your greenhouse (12 feet long and 10 feet wide) will be a small Arnott's stove, made of brick instead of iron, several of which we saw at work in some small houses for propagating roses, &c., at Mr. Rivers' of Sawbridgeworth. His description of them is as follows: Height of stove 2 feet 8 inches, and 2 feet square; foundation, common bricks and mortar; the part surrounding the fire-box, which is formed of four "lumps," is built with fire-bricks, set in fire-clay. On the top of the stove is placed a Welch tile, two feet square and three inches thick. The fuel, or feeding door, is about

the centre; a small sliding draught and ash-pit door at the bottom; a pipe, about 18 inches long, leads from the stove into a small chimney outside. A stove of this kind requires feeding but once in eight hours. The best fuel is coke. On the top of the Welch tile is placed a shallow iron pan of the same size, which can be filled with water, and thus the air in the house be kept moist. Cost of the brickwork, 30s; bars, iron doors, &c., 15s. Before cleaning out the ashes in the morning, soak them with water; this prevents dust. Mr. Rivers has had his stoves constantly employed for five or six years.

SALT, LIME, AND ASHES (*Ibid.*).—This compost, which you say is well mixed, will be a good manure for all your kitchen-garden crops, but especially for potatoes, carrots, and cabbages. At the rate of 15 bushels per acre will be enough.

MANGOLD-WURTZEL (*Joseph Richard*).—In your garden near Nottingham you may sow this any time in May. Dibble it in in rows two feet apart, and one foot apart from hole to hole. Make the holes not more than two inches deep.

PLANTS REQUIRING PROTECTION (*A Constant Reader*).—You misquote us;—and we are right in saying (p. 249) that "all plants requiring us to protect them with glass, are from regions with brighter skies and longer days than we enjoy." The annual amount of daylight is much greater at and near to the Equator than in England.

HEAT ENDURABLE BY PLANTS (*Ibid.*).—We have no precise information to give you in answer to your query, "into what degree of heated air may plants be put without injury—first in dry air, and secondly in moist air?" You think this "might assist in the discussion of plants burning under glass;" but we do not consider that such a benefit could arise from even an accurate answer—because if the burning arises from the concentration of the sun's rays in an uneven piece of glass that happens to have become lens-form, we are quite sure that the rays so concentrated would be hot enough even to set fire to dry vegetable matter, the same as a pocket lens is used by smokers sometimes to kindle their tobacco. The heat which certain parts of some plants will endure without injury is very great. For instance, raspberry seeds boiled in syrup at 230°, (eighteen degrees above the temperature of boiling water), have afterwards germinated. Peas put into water heated to 200°, germinated more readily than other peas not so treated; and the seeds of *Acacia lophantha* produced seedlings after having been boiled for five minutes. We know that the leaves of Kidney beans have been uninjured by exposure to dry air heated to 167°, but they died in a few minutes at the same temperature when the air was moist. Yet some plants will endure a very high moist heat, such as plants growing in hot water springs, and on the edges of the crater of volcanoes.

AUTUMN-BEARING RASPBERRY (*Amis*).—This is quite a distinct variety. We believe it is also called the Double-bearing, the Siberian, and the Late Cane.

ARTIFICIAL MANURE (*M. H. J.*).—Your manure, consisting chiefly of sulphates of lime and soda, we do not think would be an antidote for the potato murrain; and it certainly would not kill the wire-worm in the small quantities in which it would be possible to mix it with the soil. It would, probably, be better for potatoes than for any other garden crop.

DRAWING GROUND PLANS (*A Young Gardener*).—There is a book called, we think, Williamson's "Mathematics Applied," which will aid you.

LIQUID-MANURE FOR ROSES (*A Subscriber*).—This is best applied as soon as the blossom-buds appear; and may be given once a week. If the trees appear weak, it may be given to them as soon as the leaves begin to expand. A quart to each is enough.

SEEDS (*C. A.*).—You can get your flower-seeds of any first-rate seedsman in London. Try Mr. Hairs, 109, St. Martin's-lane, Charing Cross. If you enclose postage stamps to the value you require of *celery seed*, and send them to Mr. Turner, Neepsend, Sheffield, he will send you some post free.

PINE VARNISH (*A Subscriber from the Beginning*).—Any oil and colour dealer in London will get it for you. We believe it to be easily made by mixing common rosin and spirit of turpentine together. We never used mineral paint, but always, for out-buildings, employ coal-tar, mixing a little grease with it. It is the cheapest and most protective of paints. The fat or grease gives it a glossy face.

SHADE FOR A GREENHOUSE (*C. W. E., Newport*).—We think the gauze you enclosed will be quite sufficiently close for the purpose.

TURNING WINDOW PLANTS (*Stick in the Mud*).—If this is done daily, or even every second day, moving them half round, it keeps their growth uniform, and does not injure them.

GUTTA PERCHA FOR GRAFTING (*Ibid.*).—Flat strips of this would answer for binding over the union of the scion and stock; but it would not cover the top of the stock in some modes of grafting, so as to do away with the necessity for grafting clay.

DRAINAGE FOR A STABLE (*A Subscriber, Chertsey*).—This is a very excellent liquid-manure. It will be quite strong enough if mixed in the proportion of one bucket of the drainage to two buckets of water. It will be an excellent application to any of your garden crops, but especially if poured between your rows of cabbages, and into shallow trenches made between rows of asparagus and rhubarb. **ZAUSCHNERIA CALIFORNICA** (*Guthelmus, Ipswich*).—You will see this answered to another correspondent; and you can probably obtain there the other plant you name. We cannot say what seedsman keeps the largest stock.

WEEKLY CALENDAR.

M D	W D	MARCH 22—28, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
22	Th	Magpie builds.	Common Pilewort.	v	14 a 6	5 8	27	7 0	81
23	F	Common Linnet's song begins.	Peerless Saxifol.	57 b 4	16	5 36	28	6 42	82
24	S	Red Currant Leaves.	Golden Saxifrage.	55	17	sets	☉	6 23	83
25	SUN	5 S. IN LENT. LADY-DAY. Earwig appears.	Marigold.	53	19	7 a 35	1	6 5	84
26	M	Dog's Mercury flowers.	Livid Henbane.	51	21	8 53	2	5 46	85
27	T	Six-cleft Plume Moth appears.	Jonquil. [pard's bane.	49	23	10 11	3	5 28	86
28	W	Domestic Goose hatches.	Plantain-leaved Leo-	46	24	11 25	4	5 10	87

LADY-DAY is a contraction of the older designation, "Our Lady's day" and is the festival on which is commemorated "the Annunciation to the Virgin Mary," that she was the chosen mother of the Messiah (Luke i. 26). The oldest and most authentic of our ecclesiastical writers hand down the tradition that Mary was an only child, espoused to Joseph when but fifteen years old, and that she died A.D. 48. Our church has a service appropriated to the celebration of the Annunciation; but the day is more associated in the public mind with the payments of rents and the covenants of leases.

"Relentless, undelaying quarter-day!
Cold, though in summer; cheerless, though in spring;
In winter, bleak; in autumn, withering:
No quarter dost thou give, not for one day;
But rent and tax enforce, us to pay;
Or, with a quarter-staff, entrench our dwelling,
Thy ruthless minion our small chattels ailing,
And empty-handed sending us away!"

PHENOMENA OF THE SEASON.—It is a common opinion that exposure of a seed to the light checks its germination or sprouting; but we have tried experiments to ascertain this fact, and have deduced from them a contrary conclusion; for in those experiments apparently proving the contrary, due care was not taken to prevent the seed being exposed to a greater degree of dryness as well as to light. If seed be placed on the surface of a soil, and other seed just below that surface, and care be taken to keep the former constantly moist, it will germinate just as speedily as the buried seed; and if exposed to the blue rays only of the spectrum, by being kept under a glass of that colour, even more rapidly. Therefore, the object of sowing the seed below the surface, seems to be for the purposes of keeping it in

a state of equable and salutary moisture, as well as to place the young root into the medium necessary for its growth immediately it emerges from the seed. The facts narrated here, and in previous numbers, hold out some lessons worthy of being attended to, as guides in sowing. They point out that every kind of seed has a particular depth below the surface at which it germinates most vigorously, as securing to it the most appropriate degree of moisture, of oxygen gas, and of warmth. From a quarter of an inch to two inches beneath the surface, appear to be the limits for the seeds of plants; but they usually vary for the same seeds in different grounds and countries. It must be the least in clayey soils and dry climates. In general, sowing should be performed in dry weather, especially on heavy soils, not only because of the greater saving of labour, but because it prevents the seed being enveloped with a coat of earth impermeable to the air, "which," says H. Davy, "is one cause of the unproductiveness of cold clayey soils." Perhaps the time at which any ground may be raked with the greatest facility, is as good and practical a criterion as any to judge when it is fit for sowing. In general, if clay does not predominate in its constitution, a soil raked best just after it has been turned up with the spade. If clay does predominate, it usually rakes with more facility after it has been dug two or three days, and then immediately after a gentle rain. But it is certain that the sooner the seed is sown after the soil is dug for its reception, the earlier it germinates. In the droughts of summer, water is often required to newly-sown seeds. Such applications must not be very limited or transitory; for if the soil is only moistened at the time of sowing, it induces the appearance of the young root, which, in very parching weather, and in clayey, caking soil, we have known wither away, and the crop be consequently lost from the want of a continued supply of moisture.—Principles of Gardening.

INSECTS.—Towards the end of February, we saw more than one of those very common and very beautiful insects, the small Tortoiseshell Butterflies (*Vanessa urticae*); and we mention them thus early to save them from the destruction to which they are doomed by those who believe as the gardener believed, who gravely told us, that "all butterflies were enemies." Now this Vanessa is one of



MARCH	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
22	Showery.	Showery.	Fine.	Showery.	Showery.	Showery.	Cloudy.	Showery.
Highest & lowest temp.	58°—36°	48°—30°	61°—46°	47°—42°	51°—43°	53°—29°	58°—34°	56°—47°
23	Fine.	Showery.	Fine.	Fine.	Rain.	Fine.	Fine.	Fine.
	59°—43°	46°—28°	60°—42°	52°—26°	51°—42°	55°—37°	53°—30°	58°—44°
24	Fine.	Cloudy.	Fine.	Showery.	Fine.	Fine.	Cloudy.	Fine.
	58°—30°	46°—34°	64°—41°	48°—35°	58°—29°	53°—28°	52°—23°	55°—30°
25	Fine.	Cloudy.	Fine.	Showery.	Fine.	Showery.	Fine.	Fine.
	61°—32°	54°—36°	55°—36°	56°—43°	58°—43°	53°—36°	61°—39°	55°—35°
26	Showery.	Cloudy.	Fine.	Showery.	Fine.	Showery.	Fine.	Cloudy.
	65°—39°	50°—29°	51°—36°	60°—46°	58°—42°	54°—37°	64°—31°	54°—39°
27	Showery.	Fine.	Cloudy.	Fine.	Cloudy.	Fine.	Fine.	Cloudy.
	58°—27°	52°—41°	46°—38°	60°—41°	60°—47°	58°—27°	63°—39°	57°—40°
28	Fine.	Fine.	Showery.	Fine.	Showery.	Fine.	Showery.	Fine.
	54°—40°	60°—47°	51°—28°	60°—29°	53°—37°	52°—27°	52°—30°	59°—41°

the many exceptions to the sweeping condemnation of our knight of the spade. It is one of the gayest of insects, both in its costume and in its motions—always gladdening to look upon; and its caterpillars, instead of being destructive to cultivated plants, feed only upon the stinging-nettle (*Urtica*), whence the trivial name of this butterfly is derived. This butterfly is about two inches across, measuring from tip to tip of the wings when fully opened. The prevailing colour of its wings is reddish orange. The fore-wings dark near the body, with three black, short, broad bars in front, and in the centre, three unequal sized blotches of the same colour; between the bars the wings are yellowish. The outer edge of all the wings is black, and just within it are two rows of crescent-formed spots, but with two pale lines between these and the edge. The larger part of the hind-wings, next to the body, is black. Underneath, the wings are stone colour, freckled with brown, and having a row of dark crescents round their edge. This butterfly is more abundant from July to September, but it often survives the winter, and comes forth early in the year, on sunny days, as we have already noticed. In the I of Wight, it has been seen as early as the 8th of January. It deposits its eggs on the nettle; and the caterpillars from them appear early in June, and a second brood in August. They are dusky-coloured, varied with green and brown, with paler lines down the back and sides, and covered with strong branched black spines. The head is black. The chrysalis is usually brownish, but always with some golden spots upon it; and sometimes it is entirely of the latter colour.—Humphrey and Westwood's British Butterflies.

ONE of the most graceful and most touching of narratives is "Picciola,"—that gentle history, which all should read, of the captive whose sole companion and comforter was a plant. That captive was Count de Charney; and in watching and tending the progress of the little flower which sprang up in the court-yard of his prison, he passed many hours of

unregretful pleasure, and learned many truths, which he had scoffed at when they were taught by more presuming masters.

In all our great towns there are many captives who derive similar pleasures from their plants. It is true that no prison walls forbid their escape to a purer air, and to the company of a freer vegetable

world; but the loom and the anvil—the desk and the counter—throw before their escape bars only less circumscribing because voluntarily submitted. These captives to the wants of social life—these Spitalfields, Lombard-street, Manchester, and Sheffield Charneys—generally seek for, and find, in the culture of plants, their best recreation. From many such we rejoice to have received inquiries, and because we know that by our answers we have enabled many to cultivate their “prison plants” more successfully, we have had our reward; a reward that bids us still to press on. That our pages have ministered to that success, we have the gratification of knowing from testimonials before us; and as the knowledge of this spreads from him who is benefited to others feeling a want for similar aid, queries increase and crowd upon us. We rejoice at this, and by giving a prominent insertion to the case of one whose “prison-flowers” have no wider or freer pasturage than a window of Kings-head-court, in the City, we hope to afford help and pleasure to a great many more than our correspondent “F. B.” He says:—

“I live with my family in two large rooms *in a court* in the City, and, having been brought up in the country, am very partial to flowers. I need scarcely tell you that all our efforts to keep any are unavailing; in a week or so all their beauty is gone, and my money is thrown away. Will you kindly apprise me if you think I should succeed in keeping flowers in tolerable perfection in the following way.

“My windows are recessed, that is to say, there is a space in which the shutters fold back. Now it struck me, that if I were to obtain another sash for the lower part of each, and fit them to the openings, with a glass covering, I should obtain a space like a little greenhouse, from which the dust, &c., of the room on the inside, and the atmosphere on the outside, would be excluded. I then propose to put a small boiler at the back of the grate, in constant use in our room, and erect a *hot water* apparatus to warm my greenhouse. This I can easily do myself. But the question upon which I am anxious to get your advice is, do you think, premising all that done, should I be able to bloom and keep my plants? and if you think I should succeed at all, what kind of plants would be likely to do best? I suppose I could not manage orchids? I should tell you that although I live in a court, our room is tolerably open, so that we get all the sunshine due to its position (south), when there is any to be got through our murky atmosphere. I mean that we have no houses opposite us, but have rather an extensive prospect over the roofs, of chimney pots.

“It appears to me that the reason flowers will not grow in the City, is rather from *the dust*, &c., contained in suspension in the air, than from any real difference in the quality of the latter; because, I believe, chemists have not succeeded in detecting any difference between the air of the City and that of the country; and it also appears to me, that by my arrangement I should get rid of *the dust*. I must, I suppose, have constant ventilation, but that must take place through fine gauze, or perforated zinc.”

It is quite true, as our ingenious correspondent states, that whether atmospheric air from the summit of the Alps, or from the centre of London, be sub-

mitted to the tests of the chemist, it is uniformly found to contain the same proportions of oxygene, nitrogeue, and carbonic acid gases. This is quite true; yet we know that in all large towns there are mingling with its atmosphere, every minute, thousands of cubic feet of sulphuretted and carburetted hydrogen and of carbonic acid gases; poured forth, as they are incessantly, from the drains, the chimnies, and the lungs of their inhabitants. These, added to the invisible clouds of dust and of soot, which are floating in the same atmosphere, combine effectually to injure and to destroy the plants attempted to be grown within its poisonous influence.

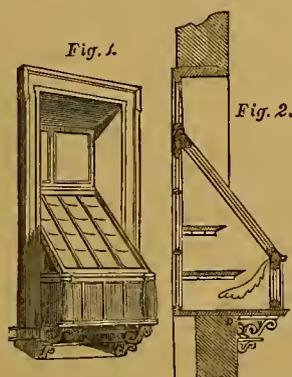
Doubtless, by the plan proposed by our correspondent, he may save, to some extent, his plants from speedy injury,—and we will aid him, as far as we can, in his praiseworthy effort; yet in such situations, after every precaution, vegetation will not be so vigorous as in purer air. The plants will require to be reinvigorated by a change to a better breathing place; and we entirely coincide with Mr. Beaton, who writes to us, as follows, upon the subject:—

“We would advise F. B. to try the following scheme, which we believe to be the easiest way to keep plants in a crowded city. No orchids, however, or indeed any stove plants, can be managed successfully by this or any other plan that we know of, under his circumstances. His plan we like also, only the hot-water apparatus will not be required, except in cold and frosty weather; therefore, he will require a stop valve to manage the circulation. If he has some experience, there is no reason why he should not succeed in flowering many showy plants that way; and without a little experience he would not succeed at first, even in the country, with a greenhouse. His aspect is very much in his favour, and with a little patience and resolution he can hardly fail of success. Do not let him furnish his new domestic greenhouse from the open markets, as many of the plants there are brought out of close pits the same morning, and with the sudden check, will not last long in bloom. Let him go out to a respectable nurseryman, state to him his case and purpose, and put it to his honour to furnish such plants as will suit. From our own experience, we know that the cheapest way to keep such a greenhouse gay all the season, is to contract with a nurseryman to furnish it *occasionally* with plants coming into flower, and to take them back after flowering—at least, for the first season or two. The nurseryman would be thus interested in keeping the plants in good health, and would advise as to the treatment of each sort. From this, and F. B.'s own experience, he would soon be able to grow a selection of plants on his own account. In a City court, what will become of them after they are out of bloom? Few plants are attractive in a room if not in blossom during the summer. The greatest display in this case must be got from the pelargonium (geraniums); the place will probably be too hot and dry for calceolarias and fuchsias in the height of the season; but in the spring and autumn almost any greenhouse plants could be managed,—hyacinths forced, and early tulips, jouquils, narcissuses, tree violets, crocuses, and snowdrops grown.”

In conclusion, instead of miniature greenhouses

within the recess where the shutters fold into, we would suggest the adoption of the "Belgian window gardens." These are constructed on the outside of our windows, and opening by their sashes, whenever desired, into the rooms they illuminate. The following description and plans are from the *Almanach Horticole* for 1846.

"Let Fig. 1 represent the outside of this window-garden, and 2, a section of it, together with the window to which it belongs. A sloping roof of glass is carried outwards from the middle cross-bars of the sash in such a way that the upper sash allows light to enter the room. The lower sashes open by a pair of folding leaves, as wide as the window frame. A pair of brackets carries the floor, which projects beyond the walls of the house. Shelves are fixed next the window-leaves, and the sloping roof is raised or depressed by means of a rack, easily reached from the inside.



Dr. Lindley adds that a rolling blind is made to work in the inside, so as to screen the plants from too much sun. A wire trellis is fixed at the ends, on which are trained *Maurandya Barclayana* and the dwarf Chilean *Tropaeolums*. The bottom to have a raised edge six inches high next the room, to be filled with damp moss in which to plunge the pots.—(*Gard. Chron.* 251.) A tank formed of tin, and exactly the size of the bottom of this miniature conservatory, and two inches deep, might be filled with hot water whenever necessary. The cold water could be easily drawn off by means of a small tap, and its place supplied through an up-bent pipe in this form.—*Gardener's Almanack.*

Whatever plan our correspondent adopts, we shall be glad to hear from him as to the result.

THE FRUIT-GARDEN.

THE VINE.—As THE COTTAGE GARDENER travels southwards, as well as towards other points of the compass, it will become our duty to furnish information concerning the grape vine: and, to commence, we will offer a little advice about soils and border formation; for there exist the same reasons for paying attention to these minutiae out of doors, as well as in the hothouse. Indeed, we should say, much greater; for, although a vine cutting, or truncheon, may be stuck in anywhere and grow—as, indeed, it is difficult to kill the vine. its vitality is so considerable—yet some other and most important considerations arise.

Ripening the wood *thoroughly* is undoubtedly the basis on which to ground all the operations necessary for successful vine culture; and although to those in our most favoured southern counties this may appear a small matter, it is not found so to others less favourably situated. Whatever plan, then, which will tend to make the vine short-jointed, and to ripen the wood thoroughly, will be found to hasten the ripening of the fruit, which is, indeed, the final point to be aimed at.

SOILS.—Any light, sandy, and porous soils are by far better adapted for the vine than tenacious or clayey soils: for the latter, through their innate power, as also from their capacity for maintaining a permanent moisture in hot weather, are sure to produce long-jointed shoots. If, unfortunately, the natural soil is of this unctuous character, means must be taken to correct the staple; of which we will speak shortly, as it will be better to say something about subsoils and depth first.

SUBSOILS.—Whatever be the character of the surface soil, the substratum must be so constituted as that no water lodgments can possibly take place. Without securing a dry bottom, it is impossible to obtain success in vine culture. When, therefore, suspicion exists as to water, a thorough drainage must take place.

In order to render this matter more familiar to those of our readers who have not been used to border making, we will suppose a case. Let us imagine, then, a south wall, at one side of a small garden; this wall, of some ten or fifteen yards in length, to be planted with the surest ripeners in the grape way. Suppose, also, that the soil is of a sour and adhesive character, and that water occasionally lodges in the substratum. From six to eight feet in width will amply suffice for the border, or bed of earth; and the soil should, accordingly, be excavated that width, to make a complete border under such circumstances: for, as the staple of the soil has to be corrected by the application of other substances, the labour thus applied will not be altogether lost in the end. Moreover, it is necessary in this case (which is an extreme one, and which we have selected on that account) to lay some permanent drainage beneath the border. To return to the excavation;—it will be necessary to have at least twenty-four inches in depth of soil; when, however, the situation is damp, we would have one-half of the soil above the ordinary ground level. Such being the case, and it being desirable to introduce about nine inches in depth of some rubble, or other imperishable material, the depth of excavation must be nearly twenty-four inches. The chief point now, before proceeding farther, is to make a main drain along the front of the border, running side by side with the walk. This drain must be a little below the level of the subsoil surface, at the border front; in order to receive and convey the water which filters through the rubbly material, or rises from springs. It will, of course, be necessary to seek out a good outlet for this drain; and the mouth of it must be secured from the tread of cattle, and from the entrance of rats, which sometimes do serious mischief in this way.

The soil being excavated, the surface of the subsoil must be rendered even; and if the ground be *exceedingly liable to water*, a cross drain or two might stretch from the wall to the front or main drain—emptying, of course, into the main. Such cross drains are common in the gardens of our aris-

ocracy, and are generally formed of the ordinary draining tiles, placed on a sole, for fear of sinking. The sole may be formed of slate or flat tiles, or fragments of any imperishable material; some use alder wood, cleft into flattened pieces, like a portion of broken slate. Indeed, the main drain should also have soles; or, in treacherous subsoils, the whole affair may be prematurely broken up, by the oozing out of silt, or sandy mud, from the mouth of the drain.

The main drain must be rather larger; two bricks flat, with a stone or slate cover, will make a very good drain; and it is a good plan to fill it up to the surface with brush-wood, or coarse cinders—all such matters facilitating the escape of water during rainy periods.

These things premised, and the drain or drains laid, the whole surface of the subsoil should now be covered over with broken stone, brickbats, or the scoriae from manufactories, or clinkers. As before observed, at least nine inches in depth must be laid on; and if any turfy material can be obtained, it is excellent practice to cover the whole surface with it—such from road-sides, or from waste lands, will be perfectly eligible. If such cannot be obtained, tree leaves, if fresh, or even some loose litter, may be scattered over the surface.

SOIL FOR THE ROOTS.—We come now to the correction of the staple of the soil which is excavated. One of the most important improvers, or correctors in this respect, is lime rubbish, or the sort of material which comes to hand in the pulling down of old buildings. This is a compound of old mortar, plaster, and broken bricks, tiles and laths; and we could never find anything equal to it as an improver of the staple of some soils for the vine. Indeed, Mr. Clement Hoare, who is as well acquainted with the natural habits of the vine as most men, has gone so far as to plant in a material of this kind, mixed with bones, charcoal, &c., to the almost total exclusion of soil. This we think “trying to prove too much,”—and savours of the joke about an Irishman, who suggested the making an apple pie entirely of quinces.

Those who live in the suburbs of towns, may, in general, secure a lot of this lime rubbish; if, however, it cannot be obtained, let coarse sand, burnt clay, any charred rubbish, and even a proportion of common cinder-ashes be cast over the soil before filling in again—using nearly one-half of such poor-looking materials, if the soil is *very* adhesive.

We would, however, before wheeling the correctives on to the soil, give that portion of the original soil which is to be filled in again, a good dressing of quick-lime. Another point, and one which we ought to have named before (seeing that by the introduction of the corrective material, as we termed the ashes, sand, &c., that much of the original soil of the border will not be wanted again), it will be well to select a proportion of the mellowest soil when excavating; the rest may be wheeled at once away to form compost heaps for other purposes, or to repair any hollows or weak places in the garden generally.

It sometimes happens, that some portions of the garden are of a lighter and more porous texture than others. When such is the case, it would be well, in the original excavation, to exchange at once the adhesive vine border for such light material; for the former will not be too sound for vegetable culture, or for making stations for the apple, the pear, the plum, or the Morello cherry.

These are policies which should be obvious to

everybody, merely requiring careful consideration; but by such contrivances much labour is saved; indeed, one-half of gardening success may be said to be dependent of good scheming. The most expensive plans are not always the best. A little half-decomposed manure, or a quantity of leaves in a similar state, should be added to the mass before filling in; and a dry period should be selected for the operation. The latter is an important matter. Care should be taken, in filling, that all the materials are equally blended, and the roughest portions should be kept towards the bottom of the border.

We have now followed the operation through, and may merely add that, in many cases where a friable soil rests on a dry subsoil, little trouble need be taken over the affair; we have seen many situations where digging in a little manure, as if for a bed of cabbages, would be all that is necessary. Nevertheless, it is proper to observe that deep borders are assuredly inimical to early ripening; we would rather see a vine flagging a little in the end of August, than still producing rambling spray—a sure criterion that more food and more moisture are present than is absolutely necessary. When borders, however, are made on the shallow principle—say under twenty inches—no digging may ever be permitted on the border; indeed, it would be the most extreme folly to attempt it. Top-dressing must be had recourse to, and this will induce the fibres close to the surface of the border, where they may be either bountifully fed when necessary, or, through the mere partial removal of the top-dressing, in a wet July or August, receive a slight check, not injurious to the plant, but enough to induce a cessation of growth, leading to a concentration of the elaborated sap in the vicinity of the fruit, so necessary towards the beginning of September.

ASPECT.—With regard to aspect, we should say that the intermediate point, between south-east and south, is the best of all. Any point, however, between south-east and south-west is eligible; we have known them succeed on much inferior aspects to these, but then it has been against a house, with a fire-place behind the wall on which the grapes were trained.

COPINGS.—We advise the use of wide copings, where the expense is not an hindrance: such arrest the hoar frosts of spring and autumn, as also the radiation or loss of heat at night, which had accumulated during the day. They, moreover, serve to protect the fruit after it is ripe, and they enable the operator to suspend any protective covering with ease; in fact, if half a yard wide, we do not see why they may not be made to produce a real conservative wall, after the manner of Chatsworth, and some other places; we mean, by having a curtain of some material to slide along a rod.

We must make training, &c., with many other matters (with which vine culture is rife), the subject of remark at a proper season; and as this is a good period in which to plant vines, as well as to make borders, we pass on to kinds, selection, mode of planting, &c.

The Royal Muscadine may be fairly placed at the head of the list, although not so early as some others. This grape always sets well, and produces a fine large bunch; it is also more pleasant when not thoroughly ripe, in indifferent seasons, than most others. Berries white and round.

Black Hamburgh.—Too well known to require description. Of first-rate quality, but we are not quite

sure that this will ripen so well in the average of seasons as the following.

Black Prince (Lombardy, or Black Portugal).—A very long bunch, with fine oval grapes, of good size, and a kind which generally colours well.

Esperione.—A round purple grape, of very hardy character. Although not first-rate in character, it deserves a place on the grape wall.

Black Cluster (Miller's Burgundy).—An old kind, which may be found on many a house, and which may be readily known by the woolly appearance of the leaf. A small berry, but compact bunch, and ripens early.

Early black July.—This grape, of somewhat inferior quality, has the merit of ripening in situations where perhaps the Hambro' and some others could never succeed. Those who would attempt grape culture in our more northerly counties, had better try their hand on this to begin with. Round, small, and black.

We dare recommend no other kinds to those whose gardens are on a small scale. For general purposes, in any county south of Birmingham (which we select as near the centre of England), none, we think, will, on the whole, be found equal to the Royal Muscadine.

TRAINING.—Many fantastical modes of training have been recommended by one party or another, and with these, in the main, we find no particular fault, but that they are not sufficiently simplified, and require rather too great a nicety in training. For general purposes, we think the best plan is to train two shoots horizontally above ground, the one right, the other left, whether for a wall or the side of a house, to rise between the windows, doors, &c., &c. The shoots which come forth at first planting should be trained upright; this will favour speedy growth. This wood, in the succeeding year, after pruning, may be placed horizontally, and the next terminal point carried upwards in a similar way, to be lowered in its turn, until the full length be obtained. Nothing now remains but to carry up shoots perpendicularly at any necessary points; these points being dependent on the character of the building; if avoidable, they should not rise nearer together than half-a-yard.

PROPAGATION, PLANTING, &c.—Cuttings or truncheons, containing at least two or three buds, may be set immediately, unless good rooted plants can be obtained. These cuttings must be so planted as that the upper bud even is just beneath the ground level, for it will readily find its way above, like a seed sprouting. This ensures a permanency of moisture; watering may, therefore, prove an assistance at times, especially until the young shoot is above ground.

If a plant from a pot is used, the old ball of soil must be gently dislodged, and the roots carefully uncoiled, and spread out systematically. It will be well to use a generous compost to plant them in, rather of a sandy character; and a little rotten mulch may be laid over the surface, in order to secure steadiness of moisture without watering, which will then only be necessary during protracted periods of drought.

R. ERRINGTON.

THE FLOWER-GARDEN.

LAYING OUT VILLA GARDENS (*continued*).—Fourth principle—*Shrubberies*. Of all the articles used to embellish a garden, there are none of such universal application as trees and shrubs; without these noble and beautiful ornaments a garden loses its greatest charm. To give an idea of desolation and dreariness, you have only to imagine a place without wood,

either to break the force of the wind, or to shelter us from the noonday sun, as well as to guard the more tender flowers from such adverse elements to their health and beauty. We may, then, lay it down as a principle, undisputable and universally allowed, that trees and shrubs are indispensably useful and ornamental to any garden, however limited in extent or inconvenient in situation.

Taking it for granted that there ought to be some trees and shrubs in every garden, we shall try to give some directions how to use them properly; and to prevent the abuse of them, by describing the extent to which the use of them may be carried without impropriety. In planting them, three things must be constantly borne in mind—shelter, shade, and seclusion.

In this country, westerly winds prevail the most; therefore, to protect the garden and its visitors from the westerly blasts, the shrubbery on the west side ought to be the most dense and lofty. Again, we have our greatest amount of cold from the north. If, as it often happens, the dwelling-house is placed on the north side, it will itself act as a shelter to the inmates of the garden, and protect them from the chilling winds of that quarter. Should the house be placed on any other aspect, the north side ought to be equally well protected as the western one, by being planted thickly with trees of close-growing habit. If the situation be in the country, evergreen firs will be the best shelter; but near smoky towns they will not live. The use of evergreen firs is liable to the objection of spreading over and injuring the more humble growing, yet equally necessary, evergreen and flowering shrubs: this objection may be got rid of by keeping those sheltering friends close pruned. By close pruning we do not mean cutting off the branches close to the stem, but shortening the shoots in, so as to keep them within bounds, and make them more dense and more effectual as shelter. Near towns, plant close-growing twiggy-branched trees for shelterers; such as the English elm, the birch, and the hornbeam. The last stands the smoke as well or better than most other trees.

The next point in the use of those useful adjuncts is *Shade*. A part of the garden should be devoted to this source of comfort and enjoyment. A straight walk overshadowed with trees, whose foliage will keep off the burning beams of a summer's sun, with a seat or two for social converse, is one of the greatest comforts a garden can afford.

Another point remains to be considered, viz., *Seclusion*. Villas that are near each other should be so planted as to enable the owner to enjoy his garden without being overlooked by others: this being a point so essential, and so dependant upon the situation of the garden, that it need not be dwelt upon, but left to the taste and convenience of the occupier.

The extent of the planting depends upon two things, the size of the garden and its situation. If the garden is of moderate extent, which is quite as much as may be expected for a villa, let the shrubbery be of such proportions as will allow of space for flowers and lawn. We have already alluded to its form under the article *Lawn*. It should advance from the boundary, to hide the meetings of walks; it should recede, to allow a great extent of lawn; and should have openings in certain situations to admit the principle of appropriation to have effect. Again, if the situation of the garden is so placed as to have no need of seclusion, the shrubbery should be of smaller dimensions. All these points require study, and attention to the various requirements

necessary to form a garden upon right principles, in accordance with that style so peculiarly English, and which gives such a delightful aspect to the gardens, whether large or small, of this country.

We find the space allotted to our part of the week's gardening will not allow us to write now on the last grand principle in laying out villa gardens, namely, *on Flowers*. This most essential and most admired part of our subject must claim our attention next week.

COTTAOER'S FLOWER-GARDEN.—It is to be hoped you read our various directions, and make use of them as far as your circumstances, both of extent and means, will allow, not only in your fruit and vegetable ground, but also in that portion of your garden used for your flowers. Let the dead twigs of shrubs and dead roots of flowers be removed, rake your borders, and put all in neat order, in the manner directed in the last number. Then procure as many of the hardy annuals, also described there, as you possibly can, in proportion to the size of your flower borders; sow them in fine weather as soon as possible, for the earlier you sow after suitable weather has come, the sooner they will reward you for your labour by their various beauties and fragrance.

Do not forget your children's little flower-pots; give them a pinch or two out of your packets of seeds, and by such means cause them to love flowers, and excite in their young minds a love for you also, and, above all, a love for the gracious Creator of those beautiful adornings of the earth. If you have made a turf-pit, or possess a frame, you should now sow such half-hardy annuals as you can procure. See in preceding numbers the directions how to perform this operation.

FLORISTS' FLOWERS.

For several weeks we have been warning our readers to beware of the weather in March. We almost turned prophet, and foretold we should have "lamb storms;" that is, we should have hail and showers of sleety snow, with frosty nights succeeding them. This is a piece of weather wisdom we have learned many years ago, that whenever during the day there fell a shower of hail, it was, in almost every instance, succeeded by a frost, however fine the evening might be. Lay this down as a rule, then, whenever hail or snow falls during the day to cover everything up securely that frost will injure. During the three nights from the 8th to the 10th instant inclusive, there were rather sharp frosts. On one of those nights, there were five degrees of frost; that is, the thermometer was at 27 degrees, or five degrees below freezing; and on each of these days we had showers of either hail or snow, thus proving our axiom, that frost generally follows such weather.

CARNATIONS AND PICOTEES.—In the last number it was mentioned that it was time to place these fragrant lovely flowers in their blooming pots; lose no time now in doing this interesting work. If your pots have been used before, have them well washed with hot water, and let them be perfectly dry previously to potting into them. Your compost should be in good condition, in a medium state, neither wet nor dry. Let it be placed on your potting-bench, and have ready some large pieces of broken pots, and a larger quantity of smaller ones; bring a few pots of your plants from the frame, and you have everything in order and ready for the operation. Then take one of your blooming-pots, clean and dry; place a large potsherd over the hole, choosing such a piece as will lay with a hollow beneath it; place three

or four others nearly as large round the centre one, so as to cover the bottom of the pot; then upon them put about one inch in depth of the smaller crocks: this is the drainage, an article indispensable to keep your plants in health. Over this drainage lay some rough pieces of fibrous turf; this is to prevent the soil falling down amongst the drainage, and choking it up. Then put in some soil, as much as will allow room to receive the plants. We have mentioned before that carnations and picotees are usually grown in pairs; it is fashionable among florists to do so, though it is by no means necessary or more advantageous. If your stock is small, you may put only one plant in each pot. As soon as your pot is ready, turn the plant out of its winter pot, and place it in the blooming one, a very little deeper than it has been. Fill up around it with the soil; shake it down, and the operation is completed.

T. APPELBY.

GREENHOUSE AND WINDOW GARDENING.

THE OLEANDER.—This is a good old plant that every one may grow, though we often hear complaints about it. In some instances, it is said that it does not flower very freely, or that the blossoms drop off just when they are on the point of opening; and sometimes it is urged that it gets so tall and straggling that it is a difficult matter to find head-room for it. I shall, therefore, go freely into the proper management of it to-day; and—as is my custom when I think it is of importance to a proper understanding of the subject in hand—shall first take a rapid glance at the natural history of the plant, or the conditions under which the oleander flourishes in its own country; for I am persuaded there is no better mode of conveying useful instruction about the management of plants.

The oleander occupies a great geographical range in Europe, Asia, and Africa. It girdles the whole north of Africa from the north of Morocco, through Algiers, Tunis, and Tripoli, coming down close to the shores of the Mediterranean, and extending inland to the confines of the great desert, then eastward through Egypt and Palestine, or the Holy Land, to the north of Syria, where it meets another line of oleanders, which extends along the north side of the Mediterranean, from Greece, through Turkey and Asia Minor; then both lines spread eastward through Persia, the north of India, and probably as far as the borders of Southern China. In all these different localities the oleanders occupy only one kind of situation—namely, the margins of rivers, brooks, and lakes, where they obtain a hot dry summer, and a comparatively cool winter. In such places they always meet with alluvial soil, formed by the sedimentary deposit left by the overflowing waters; and on this rich compost the oleanders feed and flourish to a degree unknown in our cooler latitude; and nowhere more so than on the rich and fertile shores of the Sea of Galilee of the New Testament, called also the Lake of Tiberias, and the Lake of Genesareth. This is a large sheet of fresh water, through which the river Jordan passes on its way to the great salt lake which now covers the site of Sodom, and the other "cities of the plain." There is no outlet from this lake; and although the river Jordan has been incessantly pouring its torrents into it since the days of Abraham, its waters are still as salt as brine, and nothing grows within its influence; and for these reasons it is now

called the Dead Sea. How different from the Sea of Galilee, whose waters are sweet and clear in summer, but at this season of the year the whole lake is muddy, and overflowing its margins with the torrent waters of the swelling Jordan, so that our oleanders in this locality are knee-deep in water, probably, at this very moment, and just ready to burst their blossoms, for they flower there earlier than with us. There is no rain in Galilee during the summer, hardly any after the first week in May; and then the oleander grounds get parched like the rest of the country; and except what little moisture oozes through the soil, the oleanders go without any more water until the "early rain" begins to fall, about the end of October.

Under such conditions, our favourite oleanders have three extremes—soil extremely rich, extreme drought for five or six months in the year, and knee-deep in water after the blossom-buds are formed; and we may add a fourth extreme, which, however, we cannot imitate in England—namely, an extremely clear healthy atmosphere.

These are the really true guide-posts to the proper cultivation of our neriums or oleanders. They delight in strong rich loam; and, as soon as the flower-buds appear, the pots ought to stand in saucers of water till the bloom is over; and, with an occasional syringing on warm afternoons, we imitate, so far, the delightful spring weather of the Holy Land.

All travellers agree that the spring and late autumn weather there is very agreeable; but in the low plains and valleys it becomes suddenly hot and oppressive early in May, and this heat continues till the end of October. Yet the winter is so mild, that the oleanders push out their flower-buds in early spring, while snow and frost are seen towards the north, along the Lebanon range of mountains. The melting of this snow, and the "latter rains," mentioned in scripture, swell the Jordan with turbulent floods, which overflow its margins in the low plains of Galilee, and water the oleanders with snow-cold water: therefore, warm water is not more congenial to them than to the calceolarias.

The reason why the oleander refuses to blossom, is either the want of sufficient heat, light, and air, while it is making its annual growth with us in summer, or for want of the necessary supply of water at the same time: and it must be the want of abundance of water at the roots that causes the flower-buds to drop off without expanding. After the summer growth is finished, there is no better place for the oleander to stand than in the full sun out of doors, and, if possible, having the shelter of a house or wall on the north side. Oleanders require very little water from the end of September till March; indeed, merely enough to prevent the soil from becoming powdery.

Without a peculiar mode of pruning, it is impossible to keep their heads from becoming straggling, and out of bounds, after a few years; and, as they flower on the ends of the shoots made last year, we must not cut off their points in order to get a bushy head, for, if we do, we cut away the flowering parts. Therefore, to keep a large plant in good flowering order, one half of the flowering branches must be cut down every year to the last joint from the old wood, as soon as the flowering is over for the season. Now, as the young shoots start off in threes round the flowers, and begin to lengthen long before the flowers expand, such of the shoots as you intend to cut down next spring ought to have the three points of the shoots round the flowers stopped as soon as

they appear. This will throw the whole strength of the branch into the flowers, and will also cause the bottom eyes to push out three strong shoots, as soon as you cut down the branch after flowering. This is the whole secret and turning point in the right management of the oleander; and without strict attention to it, the head of a strong plant will soon get into a confused mass of leaves and twigs. The twigs, or small young shoots, must also be watched through the growing season, as there is a constant rivalry among them as to who is to be master; and when any of them either seems to grow stronger than the rest, or has got the mastery, the only way to bring him down to the level of his brethren is just to tie a soft string round his upper joint, and pull him a little to one side; this will check the strong flow of sap which caused him to push away in such a hurry. The current of sap will then flow into the weaker shoots, and will soon strengthen them so as to cope with their rival, which may then be released from the horizontal position; but, as bad habits are difficult to get rid of, he *may* try to be the master a second time, and therefore keep an eye on him for the rest of the season. A watchful eye and plenty of time can do wonders.

I must reserve what I have to say about Dwarf Oleanders until next week. D. BEATON.

THE KITCHEN-GARDEN.

MANURES.—The waste of manure in this country is undoubtedly very great, and many refuse articles are altogether thrown aside, which might easily be converted, by a little method and energy, into very valuable composts for enriching the soil and promoting the growth of the earth's productions. If our own home manures were more carefully attended to, foreign and artificial manures might in a great degree be dispensed with. Every town, village, or hamlet that we pass through affords evidence, more or less, of the waste we allude to, by the fœtid and obnoxious evaporations which contaminate the atmosphere at all seasons, from the open ditches, gutters, water-tubs, and other places; where the drainage of stables, cattle-sheds, piggeries, wash-houses, &c., are allowed to run to waste, instead of being conveyed through properly-covered drains into tanks, cesspools, or any other convenient receptacle, placed in a situation where their contents may be turned to account, and distributed either in its liquid state over grass lands and other growing crops, or conveyed to some heap of conveniently-placed refuse, there to be absorbed, and then spread over the land in a solid state. Indeed, if we would maintain strict economy with our manures throughout the year, both these ways of applying it must be adopted, for it is not at all seasons either desirable or convenient to apply it in a liquid state; and if, for instance, the store-tanks should be full in frosty weather, which would be an improper time for applying manure to crops in a liquid state, it may perhaps be the most desirable time for collecting rubbish to absorb it. Neither do we recommend the application of liquid manures in very hot and dry weather, unless it is applied at night, either well diluted with water, or well washed in with it immediately afterwards. The evening or the night is always the best time in the heat of summer to apply water of any kind; and to the garden crops where it is applied with a watering-pot, we have found, by long experience and observation, that for the well-established growing crops good soakings

are better than sprinklings; and the spout of the watering-pot (into which a few spray sticks should be put) must be placed close to the earth, thus allowing the water to pass out quickly, but softly and quietly at the same time. Seed beds and seedlings are exceptions to this rule, and these should, moreover, in the heat of the day, be temporarily shaded from the sun in summer, which may be simply and economically effected by the use of a thin sprinkle of straw, pea or bean haulm, heath, furze, boughs, &c., &c. Liquid manure we particularly advise to be applied to growing crops in gloomy showery weather, at which time its beneficial effects are more certain, and the trouble and expense of applying it much less. It is more beneficial, because the natural moisture of the soil, combined with the showers that may be falling at the time, will dilute and circulate the manure in a far more natural and beneficial way than the hand of man or his contrivances can perform.

Our remarks thus far, upon the waste of manure, have not particularly applied to the cottager, whom we would now ask whether the soapsuds, the house slops, the drainage from the pig-stye, with many other little articles of refuse, are at all times so carefully preserved as they might be? Many will answer, we have no convenient place for saving what might be so collected; but we believe we can shew that, when the cottager is so inclined, much can be accomplished with a little method and forethought. We know that where ground is cropped, however small the piece, even if the occupier keeps it too neat and free from weeds to have any of them to swell his heap for absorbing the liquid matters named before, yet there must always be sweepings, rakings, waste and run vegetables, decayed leaves, haulms and stumps, all which are convertible into the most valuable and natural manure that can be applied to the soil. It should at all times be carefully collected, and conveyed to a spot as much out of sight of walk and dwelling as possible, but, at the same time, handy for the drainage, &c., of the house. Such a place may be made at very little trouble or expense in any garden. We have ourselves made many in various ways, always adopting those materials which were the most readily found in the locality. If only a small hole is dug, about four or six feet in length and breadth, or of any other desired size, and two feet deep, with the sides and bottom puddled over with clay six inches thick, you have at once an excellent receptacle for any kind of refuse that may come to hand. To those who can afford it, or have such materials by them, as old bricks, or refuse stone, or slate, with which they can line their tank, it makes it of course more durable. We have adopted many ways for saving the liquid from the piggeries and cow-house, the soap-suds from the dwelling, &c., &c. An old tar barrel may be purchased for a trifle, and let into the earth level with the bottom of the drain, and is an excellent article for saving the liquid from any small dwelling. Large old tea chests, packing boxes, or cement casks, are also good. Many, indeed, and various are the articles we have used for the purpose, first digging the hole six inches deeper and wider than the cask or box, and by covering the bottom, and filling up the sides with puddled clay, such things may be made completely water-tight, and will last for many years, very soon repaying the little outlay and trouble. A few handfuls of common salt thrown in occasionally to dissolve, will also add much to the value of the compost. Common salt may now be purchased for 1s. or 1s. 6d. per cwt., and

it is really a valuable article when used as a manure, if applied with a little method. Salt is best applied when dissolved in the tank, or sprinkled over the refuse as collected, which it greatly assists in decomposing.

ASPARAGUS AND SEAKALE should now be sown; and where the latter is required for new plantations, it should at once be attended to. New beds of asparagus are best made when the shoots have started about a finger's length. Full crops of *borecole*, *Egyptian*, *Jerusalem*, *Buda*, and other coles should be sown; also sprouting purple *brocoli*, and *cole-worts*; *peas* and *beans*, now coming through the soil, should be well surface-raked and stirred.—Early *cutflowers* should be watered with tepid liquid manure, even though the weather be cold, which will assist their early luxuriance. At this season watering should be performed in the morning, but never over the heads of the plants. Successions of *cabbages* should also be planted out, and a pinch more seed sown. This is a good time to sow second crops of late *peas* and *beans*; and also a succession of *spinach*, *parsley*, *marjoram*, *basil*, *thyme*, and *winter savory*. *Slug traps* must be duly attended to, as well as surface-stirring, hoeing, and forking, which are the main-springs of all crops, and must now meet with due and timely attention. JAMES BARNES.

MISCELLANEOUS INFORMATION.

MY FLOWERS.

(No. 21.)

THE graceful, delicately-tinted *convolvulus* should be conspicuous in every garden. If we notice these flowers, we shall be struck with their exquisite beauty, both of form and colour; but we are so apt to pass them by as "common" and "cottage" flowers, that they seldom meet with the encouragement they deserve, and we lose a lovely ornament of the garden. Trained round a pole, adorned with their many-coloured blossoms, like glittering gems, they are objects of peculiar grace, and must charm the most fastidious eye. When pleased with the soil, and in a sunny spot, the richness and fulness of their growth gives them additional beauty, and they would look extremely striking if standing alone in small circles upon the grass-plot. They look well as creepers over light arches formed of slender rods; but then care must be taken not to give the garden a formal or fantastic appearance by this means. They may be planted round the stems of young trees, whose branches may be too small to shade the plants, or else they will not thrive. Plant them rather thickly in a small shallow trench round the intended support, and let the soil be as light and rich as you can procure it. Always press the earth down whenever you sow seeds, that it may lie closely upon them; and where fowls or birds abound, fix some little bunches of furze or thorns over the spot, to protect the seeds as much as possible from their attacks. The dwarf, or *convolvulus minor*, is a pretty annual, suitable for large patches, or for bordering-beds, but it has not the beauty of its taller sister. The favourite flower of my childhood, and which I still look at with interest and delight, is *Venus' looking-glass*. It should be sown in masses, to give the richest effect, as it is a small, though pretty, flower, and would look well in single beds. Another annual, extremely useful and ornamental, is the glowing, glittering *nasturtium*. It flings its long,

graceful sprays around, covering unsightly objects, such as cellar-windows; which sometimes, in small gardens, disfigure the borders round the house. It springs lightly up a trellis, clusters thickly, and forms a rich mass if planted in the sharp angle formed by walls—in which situation its effect and use are very great; and it spreads rapidly and freely over any vacant space you wish to cover. Its flowers continue till very late in the autumn, which is another advantage; and its berries, if gathered while very small, and separated from their clustering form, after being covered with hot vinegar, will form an excellent substitute for capers. They must be bottled when cold, and closely corked. The orange-coloured nasturtium should be mingled with the deep red-brown variety; the contrast is beautiful, and pleases the eye much more than when the brighter tint prevails. I once saw, in the village of Portswood, near Southampton, nasturtiums of a brilliant scarlet, in a cottage garden. They had a most beautiful effect; but I have never seen any of that colour since. While thinking of flowers that are to come, let us not forget to rejoice in those already opening. How delicately gay is the lively mezerion at this season, so willing to cheer us with its fragrant beauty, that it hastens into blossom before the leaves come forth. It is a native of our woods, and may be called the "British almond." How graciously does our Father consider the pleasures of His creatures! Even in the early flowering of a woodland shrub, He provides for our enjoyment. Among the leafless sprays of the yet wintry woods, we see a herald of the spring, and feel the first wild breath of summer sweetness—and what intense delight these sights and scents produce! Though spring comes every year, and the same flowers come with it, they never lose their charm. We see with even increasing pleasure the objects that have met our eyes for many years. We hail them with as much joyful feeling as if we had never expected again to see their reviving beauty; and the first primrose, the first bursting leaf-bud, the first bright butterfly, is still as enchanting to our hearts—perhaps even more so—as when our childish thoughts were given to little else than butterflies and flowers. And why is this? Why do the woods enchant us when the concert-room has ceased to please? Why does the rich valley—the sparkling river—the stern, rocky mountain, bind us, as with a spell, when the ball-room has lost its charm, and the theatre disgusts us? Why, but because God is in the one, and not in the other,—because His hand decks the earth with its glorious attire,—because His praise is hymned from every bough,—and because there is no sin and bitterness in the beautiful scenes of nature. There all is pure and peaceful; the Lord has laid "the beams of His chambers in the waters." He makes "the clouds His chariot," and "walks upon the wings of the wind."

Wall-flowers are now decking the borders, and smelling sweetly. They may be planted out now, if seedlings of last year, for blooming this season. There are many varieties, some of a bright yellow, others of rich brown, deep red, &c., and the variegated flowers look gay and pleasing among the darker kinds. The German wall-flowers are well worth cultivating also. By watering these plants in very dry weather, their bloom is prolonged; and if saltpetre is added to the water, in the proportion of one ounce to the gallon, and given to them once only in ten days, it improves their colour, and adds to their strength. The best time for sowing the

seed is in June; the young plants will then bloom the next spring.

The wall-flower is peculiarly the flower of the cottage garden, and I love to see a sprig decorating the button hole of the labourer, when in his Sunday dress. Let him, when he places it there for the future, remember that the same flower blooms on Mount Carmel—a name which, I trust, his Bible has made familiar to him; and which, in the Hebrew language, signifies the country of gardens and vineyards. His simple nosegay thus reminds him of the miracle wrought by God, when fire from heaven consumed the offering of *faith*, and all the people saw and confessed that "the Lord He was the God;" and it will also speak of that refreshing rain which watered the parched earth in answer to believing prayer. The wall-flower, then, is an appropriate Sabbath flower, leading the thoughts of the cottage gardener to Him, without whose blessing labour has no gain, and rest no sweetness. It greets us very early in the year, and blooms gaily on, till nearly every other flower has drooped and died. The last blossom that lingered in my garden, when November had long set in, was one of these flowers of Mount Carmel.

TO CORRESPONDENTS.

ANALYSIS OF SOILS (καππα).—We cannot undertake the analyses of your four soils under half a guinea each. There is no doubt but that the black surface-soil would be benefited by being mixed with the subsoil, but more by being heavily coated with "the slade" (containing much calcareous matter), and still more benefit would arise from a heavy manuring with chalk. The first and greatest improvement would be to drain, if you can get an outfall.

GARDEN FORK AND SPADE (J. A. M.).—The best form is that adopted by Dr. Yellowly. This instrument is preferable to the spade, even for digging open compartments, for the soil can be reversed with it as easily as with the spade; the labour is diminished, and the pulverization of the soil is more effectual. For stirring the soil in plantations, shrubberies, and fruit-borders, a two-pronged fork is often employed, but that with three prongs is quite as unobjectionable, and a multiplicity of tools is an expensive folly. The accompanying is a sketch of what is termed Dr. Yellowly's fork. Entire length, three feet three and a half inches; handle's length, two feet two inches; its diameter, one and a half inch; width of the entire prongs, seven inches at the top; width at the points, six inches; prongs thirteen and a half inches long, and at the top seven eighths of an inch square, tapering to a point. The straps fixing the head to the handle are eleven inches long, two inches wide, and half an inch thick, feathering off; weight of fork, eight pounds. The best spade that we have met with is made by Lyndon, of Birmingham. It is about one shilling more than the common spade; but it will wear out two of these, and carry a sharp edge to the last. The handle is also very slightly curved, so as to prevent the necessity for stooping quite so low when digging as you have to do with the usual garden spade. It is called "Lyndon's Cast Steel Spade."



TREE PEONY (J. T. Cauler).—To propagate this by dividing the roots, which you may do without any fear of their "bleeding to death," you must take it up about the end of October; shake all the soil from the roots, separate it by a sharp knife into as many parts as there are stems with roots. Shorten the stems, pot in rich soil, and keep them dry through the winter in a cold frame, or other place where frost will not reach them. In the following spring, start them into growth by putting them into a warm greenhouse; and plant them out finally in the autumn. We never propagated the tree peony by cuttings, but it is readily done by layers. Peg down now some of the previous year's shoots. Have a joint under ground, and covered three inches deep with sandy peat and leaf-mould. Water in dry weather. Roots will be produced; but two years must pass before you can separate the layer from the mother plant. Cuttings will succeed if young shoots are taken off in August or September, with a part of the year-preceding wood at the bottom. Plant in a mixture of sandy peat and leaf-mould, in a sheltered situation. The best mode of propagation is by grafting it on one of the *Pæonia albidiflora*.

CACTI (A Subscriber, Stoke Newington).—These may be propagated by seed, by cuttings, and by grafting. We hope to have some good information as to their management shortly. The White Mulberry may be purchased of any of the nurserymen who advertise in our pages.

COAL-ASHES (M. W.).—These are good for heavy soils. See pp. 164, 204, and 263. For cultivation of the artichoke, see our "Kitchen Garden" next week.

MAIZE (*Rev. C. Carver*).—We have not seen what was said on the cultivation of this crop by the "John Bull," but whatever is there said, we must remain of opinion, after repeated trials in Essex, that it will not succeed, so as to be profitable, in this country. If any one can send us any facts upon the subject, we shall gladly publish them. Many persons tried to grow it, at the recommendation of the late Mr. Cubbett, but we are not aware of any one continuing to grow it.

CUCUMBERS (*Tamar Terrace*).—The longest worth cultivating is Duncan's Victoria. See a list, p. 196. The greatest bearer is the Short Prickly.

CINERARIA SEEDLINGS (*Ibid.*).—Of those potted last autumn, if they have been well taken care of, many will flower this spring. The botanical name of the Hare's-foot fern is *Davallia canariensis*. With proper care after they have been forced, strawberries may be forced again the next year.

DAPHNE ODORA (*A. A.*).—This plant is hardly seen in these days, another daphne, called *rubra*, having supplanted it in a great measure, both, however, have very sweet flowers; those of your plant are greenish white. An old complaint against your plant was its straggling mode of growth. All the daphnes grow best in light sandy loam, without any mixture. Unless the plants were strong and very healthy, their roots would hardly advance an inch in 12 months in the proper compost for a geranium; they must also be well drained. Your plant, only two inches high, must be in rich strong soil, or badly drained, otherwise it has hardly made any roots; perhaps it is in too large a pot,—one that would hold a wine-glass full, called a thumb-pot, would be large enough for it now. Shake all the soil from it now, and pot it in the smallest pot that will hold its roots. If the roots are very scanty, place the little pot inside a larger one, and turn a tumbler glass over them. The outer pot to be just wide enough to allow the glass to drop inside it a little; this is how the slip should have been treated at first. Never remove the glass, except to give water, until new leaves are made, and then only at night, for a week or two, until they are firm enough to stand the air.

FIGS, PRUNING, &c. (*Somersetshire Rector*).—Plant your fig directly; your angle, sheltered from the N. and E., is good. We advise you to plant the Brown Ischia, or Lee's Perpetual; we would plant one of each. No plum yet quite equals the greengage in flavour. Plant the British Queen strawberry by all means. The pinching system, as you term it, adopted by ourselves and Mr. Rivers, in conjunction with other good principles of culture, will be found correct for your pears. Blue-apron, who cut back your peach's long shoots to 6 inches, was not so far wrong as you imagined; without pruning back, how is the bottom of the wall to be furnished? the best thing is to take care and prune close enough. The pinching system is for *spur bearing* fruits.

CANVASS FOR COVERINGS (*Rev. J. Pratt and A Constant Reader*).—We are not quite assured that we quoted the price of the canvass high enough; we wrote from memory. Be that as it may, we have purchased many hundreds of yards within the last twenty years of Mr. N. Holme, Paradise-green, Knutsford, at something very near the price we quoted. There may be many other dealers. We never saw Haythorn's hexagonal garden net.

PRUNING RECENTLY PLANTED TREES (*C. W. L.*).—You say that Mr. Bircham advises you not to prune those plums and cherries planted last November, but to wait until next autumn. Mr. B.'s advice is based on sound principles, as regards forest trees, and, indeed, trees in general, so far as health is concerned. It, however, becomes necessary to adapt trees to their new situation betimes, and the course pursued is sometimes slightly inimical to high culture for a very short period. If, however, your trees are ordinary standards, and symmetry is not important, why then Mr. B.'s advice is correct.

OLD ESPALIER APPLE TREES (*Rev. T. D. W.*).—Your old espalier apples, which appeared quite worn out, should have been replaced by fresh trees. No amount of root-cutting can ever renew a worn out tree. Something may be done by a generous course of treatment, such as rich top-dressings; they are, however, but temporizing in this case. Under your circumstances, we should thin out, but not shorten; they can never make useful espaliers, or dwarf standards.

DISEASE IN PEARS (*T. Griffin*).—You state that the first black spots appeared on the leaves, and that in a few days after nearly all the fruit fell off. This is certainly a serious case. Probably a fungus, but what kind we cannot say; "their name is legion." We have experienced a similar attack on the Chamonille pear, but know of no remedy. Your peach case appears to be what is commonly termed "blister," and which arises, as we think, from badly constituted soils (in reference to their mechanical structure), or from stagnation of moisture at the root. Your potatoes exhibit precisely the same phenomena as others in a variety of districts.

DOUBLE VIOLETS BECOMING SINGLE (*M. H. Boyne-water*).—To prevent this, take runners of your violets as early in May as they are rooted, and plant them on a west aspect, where the sun cannot reach them till late in the afternoon from September to March. Enrich the soil with rotten manure, and water occasionally till the plants are well established. We have often seen the violets cast their leaves in winter when planted in the full sun. The tree violet is much harder in that respect.

MIGNONETTE (*Ibid.*).—Early sowing is the best remedy where the mignonette does not thrive well. Now is the best time to sow; make shallow drills, sow thickly, and cover, say one-fourth-of-an-inch, with peat or wood ashes, screened through a coarse sieve; and after levelling the bed or row, scatter a little soot all over the ground.

ZINNIAS DAMPING OFF (*Rev. George Griffith*).—Zinnias often damp off at the collar, as you say; the cause of which is not well known: but this disease is aggravated by raising the seedlings in a too close and hot atmosphere. As soon as the seedlings are just above ground they ought to have abundance of air, to bring them up with firm stems.

GLADIOLUS CARDINALIS (*Ibid.*).—May be watered over the leaves when planted in beds, or grown in pots, and so may all the gladioli

with advantage. This kind of watering is to be done in the afternoon.

BALSAMS IN A WINDOW (*An Amateur, Manchester*).—To rear balsams in a window, it will be time enough to sow the seeds about the end of April. See the proper culture, p. 276.

DIANTHUS (*Ibid.*).—This is some kind of hardy pink or sweet-william; the seeds may be sown now in the open air, and when the plants are a few inches high transplant them where you intend them to flower, six inches apart every way. The sickly plant is probably *acacia armata*, with yellow globular flowers; it will soon recover if you water it sparingly and keep it in the window. Having flowered so long is the cause of its losing its leaves. Keep it and the rose in the window till the May frosts are over, when you may place them in the open air for the summer. They are two good window plants. The acacia will not stand the frost, but the rose will.

PRUNING BEAUTY OF BILLIARD ROSE (*W. H. G.*).—In extreme cases of great vigour, and an uncommon good soil and favourable situation, the Beauty of Billiard rose might, as you say, produce shoots "of a very great length;" but that would be the *exception*, not the *rule*. The rose-grower you name is well known, but we hold to our directions being correct as to the mode of pruning this and similar rose-trees. Of course, if a tree pushes forth strong, we would advise longer shoots to be left, but the rose in question is not in the habit of doing so; and, therefore, we say, thin hard and prune short, and you will have much *finer* roses, though perhaps not so many.

GARDEN ALWAYS SHADED (*Gardenia*).—You say you have a plot of ground at the back of your house that has no sun on it all day, yet you wish to make of it a garden; but you do not say whether it is in a town or in the country. If it is in a town, which we suspect it is, very few things would live in it. If you do not mind a little expense, try to cultivate ferns, by forming a rockery, as we directed some numbers back. As to sowing seeds, your's is a hopeless case. Procure some plants of the following, if you are not disposed to make the rockwork:—Sweet-williams, rockets, wall-flowers, Canterbury bells, French honeysuckles, white and blue periwinkles, common Irish ivy, and London pride. Plant these in a little fresh soil, syringe the leaves frequently, and you will succeed during the summer months to make your plot gay and interesting. You may try a patch or two of the following annuals:—Candy tuft, white and purple, yellow lupines, double marigold, mignonette, double French poppy, Virginian stock, ten-week stock, and sweet alyssum. You may plant a laurel or two, a southernwood, and an acubia japonica. Do not, however, attempt any fruit trees or vegetables.

UNDER-GARDENER'S PLACE (*A. B., Lincolnshire*).—Your best plan to obtain what you want, would be to get some gardener of note and long standing to apply for you to some respectable London nurseryman, or to advertize in THE COTTAGE GARDENER, stating your age and qualifications.

PEARS FOR WESTMORELAND (*E. G.*).—You say that your wall is 162 feet long, and with a south-west aspect. You should have named the *height* of your wall. We plant dwarf trees as permanent ones; many introduce standards as temporary trees, trained between and over the dwarfs. At six yards apart, it will require about nine trees; we will, however, name more, and you can select: Pears—Louis honne of Jersey, Marie Louise, Jargonelle, Hacon's Incomparable, Beurle Die, Glout Moreaux, Beurle Bance. Plums—Reine Claude Violette, Golden-drop. You also ask for other fruit for the same situation, and we answer: of cherries—Morello and May-duke; of the peach—the Royal George; of nectarines—Murray and Pitmaston Orange; and of apricots—the Shipley. These are dwarfs, and intended to be permanent. If you are inclined to plant standards, or "riders," between, take the following:—Fondante d'Autonne pear, Easter Beurle pear, Winter Nellis pear, Greengage plum, Morocco plum, Morella cherry, Elton cherry, Moorpark apricot, and Early Admirable peach. These should be chosen with tall stems. The main ground of success must be sought in the formation of the soil. Look back to our advice on stations; and in your damp and northerly county, the pears must be on quince stocks. Be sure to drain well, and try and plant above the ground level.

SIZE OF POTS (*Amateur*).—It is quite true that Mr. Beaton speaks of a 48-sized pot being six inches wide, and we, in another page, have spoken of 32s as being of that size. This is only one illustration among many of the absurdity of the old system of speaking of flower-pots as so-many to the cast. It is evident that in Suffolk 42s are six inches wide at the mouth; in the neighbourhood of London, 32s are of that width; and at the Fareham potteries, in Hampshire, 24s are six inches wide! If you use a pot of this width, it does not signify much whether it is a 48, 32, or 24. It is too late for planting *Gladiolus Psittacina*.

RHUBARB PLANTING (*J. W. Ashton-under-Lyne*).—The crown should be two or three inches below the surface. All the Early Reds are crimson-stalked; but the "scarlet-stalked" of large size, mentioned by your friend, was probably the Tobolsk. You are quite right in trenching deeply for rhubarb, and putting in the root-scraps, &c., to render your heavy soil more friable.

LIQUID MANURE (*G. M. Leach*).—Six gallons of drainage from your stable, and three gallons of hen-dung, will require about 60 gallons of water to make a liquid manure of beneficial strength.

SOIL FOR FUCHSIA (*Maria*).—See p. 221. Myrtles flourish well in any light garden soil to which one-fourth peat has been added.

BEEF-SOWING (*L. R.*).—Early in April is a good time. Spring frosts, if sharp, kill the young plants. For out-buildings and rough palings we always use gas-tar, adding to it a little fat.

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WEEKLY CALENDAR.

M D	W D	MARCH 29—APRIL 4, 1849.	Plants dedicated to each day.	Sun Rises.	Sun Sets.	Moon R. and Sets.	Moon's Age.	Clock bef. Sun.	Day of Year.
29	Th	Large Bloody-nosed Beetle appears.	Oxlips	4 1 a 1	26 a 6	morn.	5	4 51	88
30	F	Camb. T. ends. Cowslip Flowers.	Hairy Lady's-Smock	4 2	27	0 31	6	4 33	89
31	S	Oxford T. ends. Domestic Duck hatches.	Smaller Daffodil	39	29	1 31	7	4 14	90
1	SUN	PALM SUN. Ivy berries ripe.	Annual Mercury	37	31	2 a 26	8	3 56	91
2	M	Peach-leaves opening.	White Violet	35	32	3 41	9	3 38	92
3	T	Hort. and Linn. Soc. meetings.	Evergreen Alkanet	33	31	3 41	10	3 20	93
4	W	St. Ambrose. Plum-leaves open.	Red Crown Imperial	30	36	4 17	11	3 2	94

PALM SUNDAY is so called in commemoration of our Saviour's entrance into Jerusalem, at the commencement of his last week of suffering. On that occasion his disciples strewed palm branches before him; and as in this country, at this season, the blossom-bearing twigs of the willow tribe are the most conspicuous among our trees, these have been substituted. This is also appropriate; for those blossoms, springing from a tree which is the emblem of sadness, well typifies the joy to which the sufferings we commemorate gave birth. "A willow," says Fuller, "is a sad tree, whereof such as have lost their love make their morning garlands; and we also know who the exiles were who hung up their harps upon such doleful supporters."

ST. AMBROSE, Bishop of Milan, died on this day, A.D. 397. He is to be remembered as one of the most exemplary of the Bishops of the Italian Church. He was claimed by the people as worthy to be their Christian teacher, and he resigned the gown of the lawyer to receive the pontifical robe. His writings, especially one on "The Duties of the Clergy" (*De Officiis*), are well known, both his memorable rebuke of the Emperor Theodosius is still more generally remembered. Theodosius had been guilty of a most cruel and unjust massacre of the inhabitants of Thessalonica, and then, without any apology, or declaration of repentance, came to the Cathedral of Milan to commemorate our Saviour's sacrifice. But St. Ambrose met him at the gate, and successfully opposed his entrance, dismissing him with the stinging reproach, "How can you receive the holy body of our Lord in such polluted hands, or touch his blood with lips that commanded,

in your passion, the blood of thousands to be unjustly shed? Depart, and do not aggravate your former guilt by new provocations."

PHENOMENA OF THE SEASON.—When a seed is sown so as to receive the most favourable supplies of warmth, moisture, and air, it soon germinates; and Malpighi, one of the most accurate observers of vegetation, thus details the visible changes which, under such favourable circumstances, occur in the seed of a gourd or pumpkin. At the end of the first day the seed had swollen considerably, and its skin had become so moistened that a fluid oozed from it when pressed between the finger and thumb. A small hole also was perceptible at one end of the seed, through which moisture seemed to be conveyed to the lobes of the seed (cotyledons), which had already begun to assume the form of seminal or seed leaves. At the end of the second day the inner skin of the seed was somewhat torn, and the plantlet, or embryo part, somewhat enlarged. On cutting it across the middle, the fibres, sap vessels, air cells, pith, and bark, were discernible. The radicle, or embryo root, could also be seen. At the end of the third day the outer skin had become brownish, and the plantlet and radicle had enlarged. At the end of the fourth day little lumps on the sides of the radicle shewed the points from whence the fibrous roots would issue. The leaves had not quite burst their inner wrapper, but their nerves were perceptible. At the end of the sixth day the leaves had escaped from the seed, though still within, and shielded by the cotyledons; and they thus remained, but increasing in size and gradually becoming green, until the twentieth day, when the plant was fully developed.

INSECTS.—The Seven-spotted Lady-Bird (*Coccinella Septem-punctata*) represented magnified and of its natural



MARCH	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
29	Fine.	Fine.	Fine.	Cloudy.	Fine.	Fine.	Fine.	Fine.
Highest & lowest temp.	59°—40°	59°—45°	56°—29°	63°—37°	58°—27°	57°—35°	49°—26°	61°—32°
30	Rain.	Showery.	Fine.	Fine.	Showery.	Rain.	Fine.	Showery.
	55°—41°	59°—42°	54°—42°	57°—40°	56°—36°	54°—30°	50°—20°	62°—39°
31	Cloudy.	Showery.	Fine.	Fine.	Fine.	Fine.	Fine.	Fine.
	56°—41°	56°—43°	58°—46°	60°—38°	63°—30°	62°—41°	43°—22°	71°—35°
APRIL 1	Cloudy.	Rain.	Fine.	Fine.	Fine.	Fine.	Showery.	Fine.
	52°—41°	51°—32°	59°—50°	65°—29°	59°—29°	65°—45°	46°—23°	72°—38°
2	Fine.	Showery.	Fine.	Fine.	Showery.	Showery.	Cloudy.	Fine.
	56°—26°	47°—31°	59°—48°	72°—29°	69°—33°	59°—40°	44°—28°	75°—40°
3	Fine.	Cloudy.	Showery.	Fine.	Fine.	Fine.	Cloudy.	Fine.
	57°—26°	47°—35°	61°—46°	72°—32°	66°—30°	55°—39°	44°—32°	78°—36°
4	Fine.	Rain.	Rain.	Fine.	Fine.	Rain.	Cloudy.	Fine.
	55°—39°	47°—27°	57°—41°	68°—38°	69°—35°	53°—40°	50°—37°	75°—41°

size in the annexed drawing, is one of the gardener's best friends. It is the insatiable foe of the plant louse, aphid, or green fly, for by all these names is this pest of our plants known; and Mr. Stephens gives the tribe no more praise than is its due when he says, "universal, and rich in numbers, the lady-bird keeps within due limits the aphides of every climate from pole to pole." The havoc lady-birds, or lady-cows, make among these suckers of the life-sap of our plants, may be conceived from the myriads upon myriads seen in years when the aphid is abundant. In 1807 the Sussex coast swarmed with lady-birds, to the alarm of some of the inhabitants, who were ignorant that their little visitors were emigrants from the neighbouring hop-plantations, where, in their larva state, each had slain his thousands and ten thousands of the aphid, which, known locally as *the fly*, so frequently blasts the hopes of the hop-grower. With us they are held as sacred as the robin, and in France they are

equally regarded as especially under the protection of the Virgin Mary.* We have selected the seven-spotted species because it is the most familiar to every one, and we will conclude by just sketching its history. If we examine the under side of the leaves of roses, turnips, or other plants very liable to plant lice, we shall generally find there little clusters of orange coloured eggs, sticking by their ends to the leaf. In May from these comes the first brood of the lady-bird; they are then little black insects, hairy, and with six legs, and the body projecting beyond these. The head is orange-coloured. They feed voraciously upon the lice. They pass the winter in this form, and in the spring, after remaining in the pupa state about 12 days, they are transformed into the perfect lady-bird. In this state they also prey fiercely upon the aphids, and Mr. Curtis says that he has seen them eat three or four in a minute of the little wingless lice upon a pteridionium.

* Hence, probably, their proper name; which, at first, being "Our Lady's Bird," has been shortened to "Lady-bird," in the same manner as "Our Lady's Day."

SEVERAL correspondents, signing themselves respectively "Alpha," "T. W.," "A Clerk," and "Sylva," have written to us for advice how they may best escape from their present sedentary employments, and profitably devote their money and labour to the cultivation of the soil. Such a desire seems natural to man, and the sentence passed upon our first parent, "In the sweat of thy face shalt thou eat bread," has

been kindly converted to a blessing. Worldly occupation is essential to the happiness of our worldly nature, and God has so beneficially arranged that the contest against "the briar and the thistle," to which man is condemned, is a contest and a labour in which he chiefly and universally delights.

One chief object of our pages is to aid and to promote our fellow-countrymen's progress in this their

most pleasant of labours; and we have the remunerating knowledge that we have largely attained to that object. But we feel that it is our duty sometimes to restrain as well as to cheer on our readers in their efforts to make progress in the cultivation of the soil: to check them when we see their energy misdirected, and to warn when we see them urging along a course beset with shoals and rocks. Our four correspondents are in this predicament, and we bid them beware. But before we enter upon any commentary—before we offer any advice—let us produce our text; let us publish one of their letters, for the others are of similar character. It is dated from Brixton, and signed "Sylva."

"I have often thought that many like myself may derive most important assistance in carrying out their views, in the cultivation of small plots of land, by a publication like yours. At present I am in a counting-house, but expect to have an annuity of say £20 a year, when I think of quitting the desk, and taking to gardening and farming on a small scale. Will you inform me (and, perhaps, in asking for myself I am asking the favour for many others) what is the extent of ground I could cultivate so as to get a comfortable livelihood, and the way I ought to set about the business? and what part of England would be most advisable to settle in? and such other particulars as you might deem useful for persons somewhat in my position in life? I am 38 years of age, married, but have no family. My present income is about £70 a year. I cannot expect you, of course, to lose your valuable time in replying to this letter; but allow me to suggest that, in your articles on the allotment system, you might kindly give such information for the assistance of those situated as I am; and in doing so, I think you would be rendering an essential service to a numerous body of men who must be subscribers to some extent to your publication: I mean *national school-masters*, as they generally have a piece of ground attached to their school, and could thus get practical information at a small price."

Now, before "Sylva," and the thousands like him who similarly linger for country occupations, ought to venture upon taking a plot of ground to cultivate, they should have some capital to buy tools, a cow, pigs, &c.; and, after having done this, have, over and above, enough money remaining to support themselves and pay their rent and taxes for twelve months. If they are not thus provided, they will be in that worst of all positions for a cultivator of the soil—obliged to sell their produce to meet the demands upon them. Pressures come upon such parties admitting of no delay; and they sell, not because they have been able to await the best market, but because they must have the money.

Then, again, men of "Sylva's" class are not usually the sturdy sons of the spade, best calculated for the labours of the garden and the field. They have not the sinew and the muscle developed by exercise from early youth, neither have they the superior practical knowledge of the art of growing the best crops, at the least expense, which can compensate for their

deficient bodily power. Let none such be deceived by our narrative of "Britton Abbot." He was "happy in his own industry and good management; in the beauty and comfort of his cottage, and in the extreme fertility of his garden;" but, then, Britton Abbot was a day-labourer on a farm. His own plot was only cultivated at *his leisure hours*; and if any clerk or schoolmaster, or other bondsman to indoor employment, can thus devote his leisure hours, it will be all profit to him—profit to his pocket, and profit to his health. But making the spade his foundation, instead of his buttress, is quite another matter.

Resolving, on so important a point, not to rely on our own judgment alone, we consulted Mr. Errington, as a man of much experience among cottage gardeners and the cultivators of allotments. This is his answer, and it shall close our reply to our four friends.

"There are hundreds no doubt situated as 'Sylva': many of them worthy members of society. They, of course, should look beyond the poor-laws. What, then, is to be done? Book-keeping is at an end with them. Now, I quite agree with you, that they are not the sort of men, in general, for land. No man can thrive on the small holdings within reach of such as 'Sylva,' without considerable labour. How can we expect this from persons of that class?"

"'Sylva's' annuity we will call £20 per annum. Now this, to men of his grade, should be increased to £60 or £70, by some means. Forty or fifty pounds of profit, then, has to be realised. Commercial gardening, carried on near a thriving town, and close to a railway, will sometimes do as much on three or four acres as ordinary gardening—or call it small farming, if you will—can accomplish on a score of acres. Men of 'Sylva's' calibre, however, cannot hope to accomplish this: there is, indeed, no royal road to gardening, any more than there is to geometry.

"Men of 'Sylva's' caste had, perhaps, better aim at as much land as will keep a cow and three or four pigs. If, in addition, he can procure his bread-corn from his plot, so much the better. Let him, however, first secure a winter's hay and plenty of store-roots. All this THE COTTAGE GARDENER can teach, and 'Sylva' can practise: provided, always, that such persons are willing to labour. If such holdings are, as before observed, near a thriving town, and carriage is very cheap, and manure easily obtained, why then I should not despair of seeing such men as 'Sylva,' who appears to be an earnest character, and one who is willing to 'count the cost before building the house,' creep out gradually into a sort of market-gardening system. The present position, however, of the lauded interest, affords no guarantee that such miniature farms will hereafter be readily obtained."

THE FRUIT-GARDEN.

COPINGS TO GARDEN WALLS.—Amongst the gardening questions which have been raised during the last twenty years, the subject of copings has received its fair share of disputation. We dare say that the eligibility of a night-cap to a person in bed, once fairly mooted, would raise just such another controversy.

The opponents of copings say, that they shut out the dews of heaven, besides dripping on the trees, &c. That some of these matters may be, at times,

trifling evils, we admit; but behold the vast amount of benefit copings confer, as the preservation or arrest of absorbed heat; and this, in two distinct ways. First, by preventing what scientific men term radiation: this means, that the wall having become warmed by the sun during the day, parts with the heat again during the early part of the night, owing to a law of nature inherent in all bodies, that they shall give out heat to those which are colder than themselves. Now, it has been repeatedly proved, that any body, however thin, which comes between the sky and the object in question, accomplishes this in the most certain way. Indeed, to digress for a moment, all our mat or other coverings are based, in the main, on this principle; the object being not only to arrest the departure of the heat by a body of some kind, but by one which our learned folks term a non-conductor of heat. The preservation of the heat thus acquired by walls does, indeed, seem to us the great desideratum. We have frequently known an intensity of sunshine on a south wall which, we need scarcely say, was highly exciting, and in some cases positively injurious; especially when the tree in question laboured under a sluggish action of root, or the soil was too dry. Under such circumstances, then, how great must be the extremes of temperature to shoots near the wall during a frosty night, in the end of March, after a bright and glaring sunshine; especially on a wall with neither coping nor covering.

There is another and important point to refer to on behalf of copings. With a coping projecting some eight or ten inches, the wall will be preserved *dry* during two-thirds of our spring rains; this is used as an argument against coping by some: with us, it is a strong recommendation. Moisture is well known to be a heat carrier; and the amount of solar heat stored up in the wall, under a good broad coping, where everything is dry, becomes entirely dissipated on those walls possessing no coping. Now, the frequency of such drenching showers is in some seasons very great: great, therefore, is the loss of heat in the aggregate under such circumstances; and loss of heat is surely a question worthy of consideration. As bearing on this point of the question, we have a fact to relate. Some twenty years since, our practice was to ply the barrow-engine every fine afternoon on our south walls. It was a practice acquired under the tuition of a most respectable and first-rate gardener of those days, whose character stood so high, and deservedly so, that his pupils never doubted his proceedings. We, however, found that, with all our pumping and "cleaning the trees," as we then termed it, they did not, by any means, succeed better than some of our neighbours, who totally dispensed with this washing. At last, light began to dawn in our minds, and the bonds of our master's spell became somewhat relaxed. The principles of absorption and of radiation were looked into, and it soon appeared tolerably plain that the engine was neither more nor less than a machine to get rid of the heat acquired during the day. From that period to the present we have been much more cautious in the use of our engine; which, by the way, is a useful thing to disturb insects and lodgments of extraneous matter; and we may fairly and certainly date our improved course of culture, with a corresponding increased amount of success, from that very period. Whilst, however, strongly advocating the use of copings, we would not be understood as advocating great extremes in point of width. Neither would we endeavour to urge the universal adoption of *fixed* copings. The question is, we con-

sider, still an open one here; and we are willing to concede, that the total removal of copings during the months of July and August may possibly be beneficial. Let them, however, be restored by all means in September; for their agency in the preservation of heat is as much needed then as in the spring. We think, that from nine inches to one foot will be found most eligible. They must be wide enough to throw the drip clear beyond the leaves of the trees; but beyond a foot would indeed intercept too much those atmospheric influences which are accessory to the general welfare of the tree. The favourite plan with those who advocate moveable copings, is boards on brackets, either built or driven into the wall. These are good: they are, however, rather expensive. Perhaps slates might be successfully adopted.

TOP DRESSINGS, MULCHING, &c.—We have before adverted slightly to the propriety, not to say necessity, of mulching fruit-trees generally. By mulching, we mean such an amount of either half-rotten manure, or vegetable matters, or both in combination, as will at once ward off extreme drought, encourage the fibrous roots to the surface, and act by forming a weak liquid manure during every shower of rain, or application of water. There is little difference between mulching and top-dressing; the difference is more a matter of degree than of principle. Thus, when we speak of top-dressing gooseberry and currant bushes, we mean as much manure of some kind as will enable them to carry their crop of fruit. For since we cannot, on every occasion, introduce such a needful appliance at the *ends* of the fibres, we must be content to place it on the surface, and leave the rest to the dews and rains. In speaking of mulching newly planted peaches or other tender fruits on walls possessing warm aspects, we must try to be understood as meaning something more than a manure; that is, in point of bulk. All materials of this character, thus applied, may be termed, with some accuracy, *regulators*. Thus, plant two peach-trees side by side on a south wall, on a properly prepared border: mulch the one and leave the other unmulched; the unmulched one will make, it may be, an earlier start into growth, on account of its receiving to its roots warmth from the sun, with a greater facility. Let, however, a hot June occur, with a great amount of dryness in the atmosphere, and then mark the difference. The unmulched tree will require the water-pot, and if such is neglected the tree speedily becomes stationary, or indeed loses ground. The mulched tree, on the other hand, will be found to endure; and if the mulch has been laid on some three or four inches thick, and is of a proper texture, no watering will be requisite. Behold, then, the safety of the plan! the mulching may be termed a self-acting affair: and not only this, but the mulched tree will be found, after ordinary summers, a very superior plant; and it would scarcely be too much to affirm, that very frequently a whole year is gained by it, which is a most important item in fruit culture. Having premised thus much to illustrate the matter, we have now to recommend a very general mulching, where material for the purpose and time can be spared. We do not say mulch all trees; but what we do mean is, to assist the weak, and protect the newly planted. Now is precisely the period at which to perform this most useful operation. It should not be done earlier, for we do think it far best to wait until the returning warmth of spring has restored a little of what we gardeners term bottom-heat to the earth; and in all drained or mellowed soils, this may be counted on by the middle of April.

On light or sandy soils, too, mulching is of immense benefit; and as not every one can command sufficient strong loam, of a sound texture, when planting his trees, but is obliged to use soils of a lighter and inferior cast, mulching, in such cases, becomes more essential still. Mulch if you can, then, old trees exhausted by bearing, in order to recruit their condition; mulch trees or bushes on hungry or porous soils, in order to retain a permanency of moisture during droughts; and mulch newly-planted trees, in order to control or regulate both heat and moisture.

WILLOWS.—We would now attempt to persuade the cottager, and, indeed, every one who possesses a garden, to endeavour to discover a small plot where he may plant a few willows. These things are useful everywhere, and, we may add, exceedingly profitable; as it is well known they meet with a ready sale in most parts of the kingdom.

Some time since we suggested to the cottager the planting any spare nook with the Jerusalem artichoke; such would be suitable in dry corners. If, however, any rushy or damp corner can be found, which would hardly repay the outlay necessary for draining it, why then, we say, there plant willows. We had intended to name this a month since; such a multitude of objects, however, have suggested themselves as matters of advice to amateurs and cottagers, that we have been obliged to defer this, and a host of other matters as well. Willows may yet be planted, and, before naming a few kinds, we would wish to dispel a few mistaken ideas concerning their culture.

It is sometimes supposed that the willow will thrive with any amount of stagnant moisture; such is not the case. We could never get them to answer, for instance, in an undrained bog, composed in the main of sphagnum, that white moss which thrives most over head in water, and which, when taken out and wrung by the hands, looks like a bundle of coarse wool. The fact appears to be, that the willow perishes merely for lack of food; for it is only in the gradual rotting of such substances that food is given out; and whilst they are water-logged, mosses are what are termed antiseptics, that is to say, substances resisting decay.

Willows answer very well in cold clays, if a reasonable amount of soil can be scraped together to plant them in, where clays are shallow, or what farmers term "thin skinned." They may, therefore, be thrown into what are called lazy beds; the furrows thus formed will serve to carry off superfluous moisture, and may be deepened if necessary. Peaty soils, if wet, may be served in a similar way, elevating the beds a greater height still; and when the peat has mellowed, any sandy or gravelly soil may be mixed on the surface. The sides of boundary ditches, too, may be put in requisition; where a broad facing exists, a row or rows of willow truncheons may be planted on the facing, about a foot above the water level. We have known such assist in keeping up a powerful fence against cattle, and a source of much profit. Of kinds, we are not aware that any will be better for the cottager than the common willow or osier (*Salix viminalis*); the small golden willow is very tough, but rather delicate. Where much room exists, the large Huntingdon is found to be very profitable. These, however, are only cut about every third year, and are used for barrels, tubs, &c., as hoops and staves. They may be planted about half a yard apart; and it is well to plant good sized trun-

cheons, or cuttings, say upwards of a foot in the soil, and about nine inches out. R. ERRINGTON.

THE FLOWER-GARDEN.

LAYING OUT VILLA-GARDENS (concluded).—**FLOWERS.**—In the confined space of a villa garden, the situation and arrangement of the flower-beds are matters requiring considerable taste to make the most of the limited plot of ground to be devoted to the culture of those beautiful and fragrant ornaments of the earth. And here we might, with great propriety, launch forth in the praise, and expatiate on the beauties of Flora, but we need not. The love of flowers is deeply impressed upon the human heart, in infancy, in youth, in manhood, and in old age: whatever our rank, or station, or circumstances may be, we all admire flowers. Dull, and callous, and depraved, indeed, must that heart be, that the sight and scent of a flower-garden in all its glory does not cheer, gladden, and fill with pleasant grateful emotions.

In placing the flower-beds, we ought to be guided by the manner in which we purpose to lay out the garden. If the beds are divided from each other by grass lawn, they should be placed near the gravel walk. They should be of lengthy forms, rather narrow, so as each flower plant can be distinctly seen. Those long narrow shapes can be more easily managed than broad heavy masses. Weeds can be removed; the beds hoed and raked; the flowers tied up or pegged down, as they require; water can be applied more easily; and the flowers gathered more readily. Also, by having beds of such forms, there is, in performing the necessary operations, less need to set a foot upon them—a pressure always to be avoided.

Another point to be attended to is, to form the beds of different sizes, some of smaller dimensions than others. The lesser beds will then conveniently serve to receive one kind of flowers, such as groups or masses of scarlet geraniums, verbenas, petunias, calceolarias, heliotropes, and other dwarf flowers, which do not associate well with tall-growing kinds. These small plots of flowers should be placed in such situations as to be well exposed to view. A very good place for some of them is on the parts of the lawn between the shrubbery and the main walk. They may be chiefly of the two beautiful forms—the oval and the circle; these are more graceful than straight-sided beds, and, on account of their size, are equally as convenient to manage as the larger lengthy forms. Flower-gardens laid out in this style will allow a large unbroken space of lawn to be seen from the windows, or from the covered seat on the mound, alluded to under the head "appropriation;" whereas, if the clumps of flowers were placed more in the centre of the lawn, they would lessen its apparent size, breaking, as it were, the ground into two parts, and thus destroying its unity as a whole.

We must now briefly notice the method of designing flower-beds, known as the "French parterre" and "Dutch manner." These are very suitable for villa-gardens of small extent; and when well laid out in suitable figures, not too large, of easy curves, or neat straight lines, and kept in good order, they have a pleasing effect. They are formed with gravel walks, box edging, and beds for flowers. Here, again, as in the former method, the sizes of the beds should be varied; the smaller ones for the same

kinds of flowers, and the larger ones may either be of a mixed character, or in masses of the taller-growing flowers: yet none of them should be so large as to require the gardener to tread much upon them to perform the necessary operations. These kinds of flower-gardens require to be kept exceedingly neat and trim to be effective, and are very proper for the ladies to exercise upon, and keep in order, as the gravel walks will be more frequently in a dry state than the lawn; not but that a garden with grass between the beds may be partially managed by its mistress, as well as the other.

Rock-work and water are both ornamental in tolerably-sized gardens, if judiciously planned. We have already described the mode of forming these beautiful additions to the pleasures of the garden, at pages 89 and 168, to which we refer the reader. We have now brought our remarks on laying out villa gardens to a close; we trust they will be useful to numbers of our readers, and interesting to all. We are sensible, from the confined nature of the subject, that to our scientific friends, who may now and then glance over these pages, the instructions and ideas may appear of the smallest calibre; but we would beg them to remember we write for parties and gardens of small order, and our remarks must be of a corresponding nature. If the instructions we have written be useful to the uninformed of our readers in any degree, we shall be perfectly satisfied.

LAYERING EVERGREEN SHRUBS.—Now is a good time to do this work. If you have any choice ones you wish to increase, the following is a good and certain method to multiply them:—Procure a sufficient number of hooked pegs; some of them should be pretty strong, as thick as one's finger; others may be smaller. The strong ones are intended to hold down the strong branches closely and firmly to the earth. Have ready also a portion of the same kind of soil the shrubs thrive in best. Then take such of the branches that are nearest to the soil, and, with a sharp knife, make, on the other side of each branch intended to make a plant of, an incision sloping upwards, about one inch long. The depth of the incision will depend upon the thickness of the shoot. If your knife at the inner end of the cut touches the pith, the cut will be deep enough. As soon as the incision is made, hold the branch with the left hand firmly down, and, with the right, thrust into the ground a hooked peg, strong enough to keep the layer down. Place the peg a little below the cut, that is, between it and the stem of the shrub, or the branch will be in danger of snapping off. Repeat this operation upon every branch you may wish to convert into a plant, that is conveniently situated for that purpose. As soon as you have done this, lay on upon the branches so layered an inch of the soil, leaving uncovered the ends of each shoot, with as many of the leaves on as possible. When the leaves are very large, as are those of the Magnolia, five or six will, in general, be sufficient. If the leaves are smaller, leave them on each layer the whole length. The length of each layer to be left out of the soil depends upon its age. Old shoots do not emit roots so readily as younger ones, consequently, if the young shoots are short, you should only allow short lengths to be left out uncovered; if long, the contrary.

There are some *deciduous* shrubs that also require to be layered, in order to increase them. Use the same method for them as for evergreens. Some small shrubs have such small twiggy branches that it is almost impossible to cut them to make incisions,

neither is it necessary. Such small twiggy-branched shrubs, hardy heaths, Ghent azaleas, &c., will root as layers without cutting, or, as it is technically termed, "tongueing." All which these need, is to have the layers covered with the soil they require.

ROUTINE MANAGEMENT.—Our amateur and cottage friends must remember that this is the grand month for propagating the various things to plant out in May and June. We recommend you to procure, as soon as possible, additions to your stock of bedding-out flowers. There is a plant introduced by Mr. Hartweg, from the famous country California. Mr. Beaton has already alluded to it. We mean *Zauchsneria Californica*. This is a plant well adapted for planting out in the flower-garden, either as a single plant or in masses. It is propagated very easily by cuttings of the young wood, in sand, under a hand-glass; they will strike without heat, but quicker with it. If you procure a plant now, you may, before planting out time, make half-a-dozen or more of it, if you manage well. The smaller the cuttings the more easily they strike. As this is a scarce plant as yet, you must exert all your patience and skill to increase it. When the cuttings are rooted (an event you may easily ascertain by turning the pot containing them upside down), give it a very gentle stroke on the edge of the frame or striking pit, holding the pot with one hand, and with the other receive the ball of earth out of it; if the cuttings are rooted, you will perceive the roots at once; if not rooted at all, or not sufficiently so, put the ball of earth into the pot again, disturbing the cuttings as little as possible; turn the pot the right way up again, and give it a gentle stroke at the bottom upon some firm substance, to settle the soil, sand, and cuttings into their place again; replace them in the frame a while longer until they are well rooted. This method of finding out when cuttings are rooted applies to all sorts of free-rooting things, such as verbenas, petunias, geraniums, and fuchsias, as well as to the new plant *zauchsneria*. This is a name rather difficult to pronounce; it is very like the sound of "sauce nearer ye."

GRASS LAWNS.—The weather has been so mild that the lawn will now, in most gardens, have grown so much as to require mowing. Let it first be well rolled the day before the mowing takes place: this will level all the little heaps of earth that the frost may have raised or worms east up, and by the next morning the blades of grass will have risen so as to stand against the scythe. Pick up all bits of stick and stones, or they will take the edge off from the scythe; then in the morning, very early, before the dew flies off, the mowing should be done. Mow it twice over; that is, forwards first, and then backwards; the latter, if neatly done, takes out all the marks the scythe leaves, and gives the lawn the beautiful even smooth appearance it ought to have. After the mowing is finished, rake off the grass and take it away. If you have hotbeds at work, place the grass round them; it will renew the heat. Then sweep the lawn with a half-worn broom; clip the edgings, and rake the borders as far as needful. Clear all your sweepings and rakings away, and your garden will then have that neat appearance so delightful to view. If you roll the lawn frequently, it will cause the grass to grow short and thick, besides making it better to mow.

FLORISTS' FLOWERS.

CUTTINGS.—Amidst all your cares do not neglect your cuttings. Water, shade, and pot them off when struck, all in due season. There must be no delay or

neglect in this matter. Some of the more early struck ones may now be hardened off. A good plan to do this is to have some hoops stretched over a bed, with long pieces of wood lengthways, and cover up with mats from both cold and too strong sunlight: both, in excess, are injurious to tender newly struck plants.

ACRICULA AND POLYANTHUS.—These are the earliest in bloom of the florists' favourites, and, to bring them out in capital style, must now be carefully tended; cover up very securely every night. An old florist, who flourished twenty years ago as a successful grower of these beautiful flowers, used to cover them up with thick woollen stuff, commonly called *blankets*, and he always considered this covering as one of the grand points that led to his success. Be that as it may, if you have no blankets, cover up with something as good.

CARNATIONS AND PICOTEES.—We suppose you will, by the time these directions reach you, have finished potting these plants. But, as yet, it is too early to place them on the blooming stage; and your frames will be wanted for other purposes. They also take up more room now. The weather is yet too uncertain to trust these valuables exposed to its changes. We advise you, therefore, to adopt the same method as recommended for hardening off verbeas, petunias, and such like; that is, with hoops and mats. To succeed in any pursuit, two qualities of mind are necessary—patient industry and unremitting perseverance; qualities, perhaps, more needful to the ardent admirer of florists' flowers than any one else.

T. APPLEBY.

GREENHOUSE AND WINDOW GARDENING.

LAST week I intended to write a long letter detailing the whole process of spring potting, striking cuttings in various ways, and then to wind up with stating many things that ought to be done about the middle of March, and also things that should not be done; but having been earnestly requested to give the treatment of the oleander, that subject occupied my space, and is only now concluded. Some of these topics must, therefore, stand over for the present.

SPRING POTTING.—All plants in windows, pits, or greenhouses, may now be safely repotted as convenience may permit. Spring potting is as different an operation from summer potting as winter pruning is from the summer pruning, and yet thousands pot their plants all the year round just in the same way; that is to say, they turn the plant out of a pot and place it in one a size larger. Gardeners, however, find it necessary at this season to put a great number of their plants into smaller pots than they were in through the winter. In some instances the old soil is found to be so poor and exhausted that it would almost seem cruel to retain it; in other cases, drips, bad or insufficient drainage, or long standing in damp cold pits, have soddened the old soil so much that many of the young fibrous roots have perished. Other plants may have grown too much at the roots; some of which must therefore be pruned off, as young roots are always more active than old ones; and it is only when plants are beginning to grow that it is safe to reduce old roots. After these come a host of plants that have been kept half-dry since last October; and others, such as the scarlet geranium, that have been kept quite dry since the beginning of December. All these have lost their small outside roots, that is, outside the ball; the size of the balls of

such plants may, therefore, be reduced without any harm. There are many other cases that will present themselves at the potting-bench that need not be enumerated, but all go to prove the necessity of reducing the old balls, more or less; and once the ice is broken, or rather these same balls, you may as well pick out or shake off as much of the old mould as can be done without making an absolute clearance of it, or endangering the safety of the roots.

Now, if you comprehend the force of this reasoning, let us begin spring-potting with pen and ink as if we were doing the real thing at the potting-bench. The outer sill of a window, a four-legged stool outside the back-kitchen door, or the head of an old beer cask, if ever made use of for shifting plants on, are, in the language of gardeners, called "a potting-bench." Now, take that scarlet geranium to begin with, and turn it out. Where are you going with it? Oh! I did not mean to turn it out of doors; but never mind—don't blush; the best of us knew as little about gardening once. I recollect I used to pull up my first cuttings of the Balm of Gilead regularly once a week, to see if they were rooted, instead of turning the whole ball out of the pot entire, to see if the roots had appeared through it. So you see there is little cause for blushing. We must all live and learn, as the old saying is. Now strike the edge of the pot on the side of the potting-bench, and let the ball rest on the palm of your left hand; separate from the ball the drainage crocks, and lay them on the bench; they will do to drain with again. You see the bottom half of this ball is quite dry and powdery: this is bad gardening; you did not wet the ball right through, as I directed, when you brought the pots from the winter quarter. Pick off this dry part of the ball with your fingers; now give a gentle squeeze to the other half to loosen the mould; not so hard as that you may crush the old roots; shake the ball a little.

You see, now, this soil is so poor and gritty it could not support a rush; you had better shake it all off; take hold of the plant in your left hand, and with your right hand pat, pat, on your wrist, and the gentle concussion will cause all the mould to separate from the roots without hurting them. You see these white pointed little things along the old brown roots, they are the rudiments of new roots, and are only produced so far down as the water reached. These are the real feeders, and, if we had not shaken off that old exhausted soil, poor feeding they could only have till they had reached the outside of the old ball, and had got into fresh soil, if we had put the old ball entire into a larger pot, as some people do, for want of knowing better. Do you see that large coil of roots? You are right, it is only one root after all; we must cut him off at the first bend, as he takes up too much room, and these dry old roots do not take up nourishment themselves, only the feeders which issue from the sides do that; but when we have cut him off, three or four strong white roots will grow from the part left, and these white roots will be capable of sucking up food with their whole surface till their bark gets too hard to let the water through, then they can only suck with the tips of their points. So you can perceive that one good young root is worth ten old ones in a pot. Besides, these old roots are, at this season of the year, the best things possible to get a stock of young plants from; for it would tell sadly against our ingenuity if we could not make these roots grow afresh. Cut them into four-inch lengths, and plant them round the sides of a small pot, in a very sandy compost, and leave about half an inch of their tops

free above the mould; all the watering they require, is merely to keep the soil from becoming quite dry. They will do in any warm, dry place, and after ten days, or a fortnight, you will see them pushing out leaves, and beginning to grow freely. There are many plants whose old roots could be made to produce plants in the same way, as well as those of the geraniums.

Cutting off that large coiled root has reduced the bulk so much, that instead of giving this plant a larger pot, we must put it into a smaller one; and you had better recollect a useful rule which gardeners follow under similar circumstances, and that is, when roots are reduced, and a plant is to be put into a smaller pot, they take the very smallest pot that will hold the roots without doubling them in or cramping them; and, whatever the plant may be, a lighter compost is used for this potting than what the plant, under ordinary treatment, grows best in. This is to make it more easy for the very young roots to extend themselves freely. In the course of another month, this plant will require another shift, and as the roots are young and active, and the growing season very favourable, you may pot it into one two sizes larger.

Let us now suppose the next plant to be one that has the roots much decayed, owing to the soddening of the soil. Sour or soddened compost is ruinous to all kinds of plants, therefore, we must shake all of it away at once; and if we meet with a large old root we shall be glad enough to retain it, as it is ten to one that most of the small ones are decayed up to the older roots. Cut away every morsel of the dead roots, and pot this plant also in a very small pot and in light soil, and be very careful not to over water it for a long time, as its general health is very much impaired. The third plant looks just like one a gardener would like to pot; turn it out, and let us see how the roots stand. How healthy, to be sure! You cannot get the point of a knife into that ball without cutting a healthy root; we cannot even get the crocks disengaged without injuring all the roots in their neighbourhood. When roots are very healthy like these, they delight to insinuate themselves among oyster-shells or whatever other thing forms the drainage; and it is not at all requisite to separate the crocks from each healthy root. Take a pot two sizes larger, and put this plant into it just as it is, and deep enough that the fresh soil may cover the top of the old ball, but no more.

One more pot, and I must leave you: take that one in the corner, it looks nearly as well as the last; turn him out, and you shall see what no good gardener ever likes to see: I mean a worm, for I see the worm-casts on the surface, and if he has been there long we shall see his tunnels and galleries through and through in all directions; out with it, and let us see the worst; bless me, what a monster he is, as fat and sleek as any alderman, and nearly as long as the serpent! How is it you did not get him out sooner? You might have easily known by the worm-casts that he was at work, and you had only to turn out the ball and if he should escape through this tunnel into the heart of the ball once or twice, you would be sure to get hold of him at last. These worms are very destructive in pots; not that they eat the roots except to clear a passage, but they eat the soil and afterwards discharge it, and after some time the whole ball is rendered sour and stiff; and the roots get deranged, and a whole train of evils soon follow.

Before I leave you, until next week, let me offer a few general remarks on spring potting. Let the

plants be well watered two days before potting, that the surplus water may have ample time to pass off, and leave the ball in a uniformly moist state, *not wet nor dry*, and let your compost be in as near the same state as possible. As we shall soon have the summer and dry weather, when much watering will be required, leave a good half-inch space free on the top of the pots to allow of perfect watering. If the pots are too full you will never be able to keep the plants alive in summer, but in the autumn it is a safe plan to have the pots pretty full, so that if any careless person has to water them any time in winter, the pots will not hold too much of it at once. It will hardly be necessary to insist on good drainage after all that has been said about it already; but a good tale or a good precept is never the worse for being twice told. After a good drainage and a layer of moss or fibrous roots from the compost, put in an inch or so of the fresh soil, and try how the old ball will fit in. If it is too deep, add more soil at the bottom; and if not deep enough, the pot is too small, as one inch is the least that can be put under an old ball. When you hit on the right fit, the surface of the old ball is $\frac{3}{4}$ inch below the rim of the pot; then put in about an inch of the fresh compost all round the ball, and rap the bottom of the pot sharply on the bench. This will settle down the soil, and cause some of it to enter such cavities as you may have formed in removing part of the old soil. Then put in a few bits of charcoal or broken bones, or lumps of turf out of the compost, and another inch of the soil; then another rap, a layer of rough stuff, and so forth, till the pot is full enough. The rough pieces act mechanically in keeping the whole in an open porous state, besides being of the greatest use in feeding the plants. Every plant fresh potted ought to get a good watering with a rose watering-pot, to settle the fresh soil; and the plants kept more close for the first week or ten days to encourage the roots to work into the new soil. A slight syringing over the leaves on a fine afternoon now and then will also stimulate the plants to a fresh exertion.

From the end of March to the middle of May, there is hardly a gardener in the country who is not pinched for want of pots or pot room; and I suppose amateurs who cultivate many plants are in no better condition; therefore it may be useful to state some of the shifts resorted to by gardeners at this season. All their early tulips, hyacinths, narcissus, and other spring bulbs which are forced in winter, are, after flowering, stowed away anywhere, so that they have air, light, and are not liable to get frosted. A few weeks of this treatment will bring them gradually round so as to be able to stand the open air, as if they had grown early of their own free-will, without any forcing. When pots get scarce, these bulbs are turned out, and planted in a sheltered situation, the surface of their balls being an inch or so below the new soil. If any of these bulbs happen to be very dry at this planting, the bulb will never do any more good, as you cannot moisten it afterwards. It is like potting a plant with a parched ball, and all the world knows that one may water such a plant three times a day, and yet the poor thing will die at last for want of water, as the whole will pass off through the fresh soil; and so it is, or will be, with forced bulbs when planted out in a dry state. Soak their balls, therefore, and you may plant them immediately, and when the whole is finished, give a good watering all over their heads, to settle in the soil about their balls, for, if you leave the least cavity, the easterly winds will get in to dry and chill them. In the

absence of April showers, this bed of bulbs must have a regular supply of water, say twice a week, till their leaves turn yellow in May. To ripen off their leaves in the most natural and encouraging manner, is the grand secret of their doing well another year. None of these things should be allowed to seed; it would murder them outright. Hyacinths, or other bulbs, grown in water-glasses, after being gradually inured to stand the open air, may be planted out in the same way, only placing the bulbs three inches deep, and using very light soil, so that the roots may take hold of it sooner.

DWARF OLEANDERS.—The directions given last week refer to oleanders with large bushy heads. To have little plants of them, with stems from six inches to a foot high, and with from one to half a dozen or more flower-heads, a totally different plan is to be pursued. First of all make a batch of cuttings—and this is the time. They will root either in water in a warm room, or in light soil mixed with one-half sand, in small pots. Seeds and cuttings should always be reared in small pots. If they had the advantage of a corner in the cucumber pit, they would take less time to root. When well rooted, give them a small pot each, and rich light compost of one-half of any kind of very rotten dung in a dry state, and the other half strong loam. The rotten dung will so open the strong loam, as to agree with our usual term, "rich light compost." These young plants ought to be grown the first season with only one stem. If they offer to throw out more shoots, as they often do, rub them off as soon as they appear. Let them have abundance of water and air, and be as near to the glass as they can stand without actually touching it. Recollect the fierce sun they enjoy on each side of the Mediterranean, and that in Barbary they are the only trees that remain green in many places, when the sun burns up the other vegetation in summer. Continue this treatment to the end of August, and then allow them less water; and if the weather is open, they may stand out of doors through September, till the first appearance of frost, then to be wintered in a cold pit or cool room, where the frost is just kept out; and all the watering they require till next March will be very little, only just enough to keep the soil from getting dusty. If they are kept as cool as they ought to be, and in the right compost, once a month will be ample watering for them.

About this time next year, we shall suppose you have from two to twelve nice oleanders, from nine to eighteen inches high, and with only one stem to each. Divide them into two lots, putting all the strongest together; and the weak ones are to be cut back to the length you wish the stems to be, but not to be then potted. These—for I suppose you will have a couple cut down, at least—are to be encouraged to grow all that summer as before. Three little shoots ought to grow from the joint to which they were cut, and should be managed so as that they grow up of equal strength; and the autumn and winter treatment to be as before. All these ought to flower the following summer, with two and sometimes three flower-heads, according to their strength. Along with the flowers, they will put out two or three shoots from the top; you will stop these, leaving only one joint of the young growth; this will strengthen the flower-buds very much, and prevent their dropping off. As soon as these are out of bloom, turn them out of doors, and place them in a sheltered place full in the sun, and water them regularly. Now, this is exactly the reverse of the usual

plan: people wish to force their oleanders, as it were, after flowering, to get young shoots for blooming the following season, and that is the right way to manage large plants, but these small plants are to be so managed as to keep small for half a life-time; and is quite a new plan in print, as far as I am aware of, although successfully practised by some gardeners for the last quarter of a century.

On this plan the plants are to flower only every other year, so that it is necessary to have two plants at least, and as many besides as your room or inclination may dictate. The plants may be cut down every year, about the end of March; but, where there is room, some may be cut as early as February, and forced; others in March, and a third lot at the end of April, and they would come in next year in succession for bloom. It will now be seen why the one-year-old plants were divided into two lots—the strongest being retained without cutting down, as having the best chance to flower that season; but, whether they flower or not, they must be encouraged to grow well, and be cut down to the last joint from the old wood next March; thus completing the system.

Under this system, the cut plants are potted annually about the end of May, or as soon as the young shoots are two or three joints long; and the flowering ones are potted in April, when they have made a little growth. When the pots are too large for the size of the plants, as they will be about every three years, the roots are reduced—very barbarously, it is true, but it *must* be done—and the proper time to do it is, just when the plants have done flowering. Turn them out of the pots, and with a sharp tool cut away from the outside of the ball, and from the bottom, till you make it small enough to be put into a 5 or 6-inch pot, with an inch of fresh compost under it, and all around it. Keep it in-doors, and from the sun, for the next month or five weeks, and by that time, new roots will fill the pot; and, as the plant is not to flower two years running, it will have plenty of time to recover from this severe treatment. Indeed, you will find that it will be much benefited by the ordeal.

When the plants are of full age—say four years—and have been cut down twice or three times, there will be so many shoots formed as will give you a chance of selecting the strongest for blooming, when the weak ones may be rubbed off as fast as they appear. The only precaution that is necessary is, never to be tempted to deviate from the system of cutting down the plants every spring after flowering; and never to stop a shoot, except those that accompany a flower-spike.

There is a rage now-a-days for stopping all kinds of plants to make them bushy—a system, by-the-by, every whit as unnatural and absurd as the Chinese system of torturing plants into stunted growth. From this system the oleander is fortunately exempt, or, at least, should be; not always, however, for I know a gardener who lost many dozens of his dwarf oleanders, three years in succession, by the over-zeal of his young men, who thought they could do no harm by nipping off the points, at any rate!

Although I have mentioned the oleanders as if there were but one sort, there are many kinds of them—single, double, pink, rose, and different shades of these; and I have read of a yellow one, in one of the many books written on the French settlement in Algiers: the author's name I forget, but he distinctly said he had seen it in flower. In answer to subsequent inquiries, I was informed that this yellow

oleander was brought to Paris along with other varieties of it, and, somehow or other, their names got mixed, or, at any rate, doubts existed as to the certainty of which was the yellow one. The truth is, although the French people have always been forward in the cause of natural history in other parts of the world, in Algiers they were more bent on hooking poor old Abdel Kader than on enriching their gardens with the beautiful yellow oleanders.

D. BEATON.

THE KITCHEN-GARDEN.

THE basiest part of the seed-sowing season is now past, and the growing season has again commenced. Look now where we may, upon the beautiful productions of nature, much alteration is taking place. The green foliage, the blossoms, and the young shoots are now fast bursting forth in all their varying forms and tints of colour. Our native song birds are singing in every rural spot, whilst the sweeping winds and the genile showers are hastening vegetation on to perfection.

LOOSEN THE SOIL.—We cannot dwell too much at this season upon the necessity of loosening the earth's surface, in a regular manner, upon all suitable occasions; for on this operation does the success of all garden produce now greatly depend. Many cottagers, it is to be feared, neglect this all-important point, for want of a due consideration of its usefulness. Some, we believe, cling to the very absurd notion that the hoe is not needed for the crops until the weeds have become clearly visible amongst them; others imagine that they do very well if they can just cut the weeds down previously to their seeding; but this is, in truth, not only encouraging a real enemy and a robber of the soil, but also weakening the crops by shading them from the light, and preventing that free circulation of air so essential to a healthy and luxuriant growth.

Some, again, think it of very little consequence whether the ground be stirred or not; but let it be remembered that not only are weeds removed, and the genial influence of the sun and air admitted to the soil by this practice, but slugs and other obnoxious insects are thereby destroyed, which would otherwise devour or injure our crops. Let surface-stirring, therefore, never be neglected; but, as soon as the seedlings at this season make their appearance, begin with light shallow rakings. In a crop that has been sown broadcast, the small hand-hoe should be early at work, to single the plants to small distances at first; if a drilled crop, the Dutch or push-hoe should be used, taking care to cut shallowly the first time, every inch of the surface-soil.

EARLY CABBAGES AND CAULIFLOWERS should now have liberal applications of liquid-manure, which, if applied a little warm to a small portion of the crop, will much improve and forward it. It is a mistake to suppose that LIQUID-MANURE is only needful in dry weather. As we have observed before, showery and gloomy weather is preferable to any other, as the manure circulates more readily in the soil when moist. It should always be applied as clear as possible to all growing crops or plants, as the sediment rather tends to stop the pores of the earth, if thrown on in a lump; and it can always be reserved for untrenched ground, to be trenched in when required.

RIDGE CUCUMBERS should now be sown on a healthy bottom-heat, and the seedlings potted as soon as possible after they are up, kept lightly covered, and well supplied with air, so that a healthy

sturdiness may be maintained. The fermenting materials should be collected together to form slight beds in trenches for them.

MELONS.—The little *Queen Ann Melon*, too, does very well ridged out under a hand-glass. Melons should be sown in frames on a moderate bottom-heat, and carefully hardened previously to turning out on ridges. Those in pits and frames should have careful attention. Such as have been turned out long enough to have made from five to seven joints should be *stopped*, by pinching off the leading buds. They will then form side shoots, and show fruit; one joint beyond each show of fruit should then be stopped, and when a tolerable number of them are in blossom on a fine day, they should be *set*, by applying some pollen or yellow dust from a male flower to the centre of a fruit-bearing flower, in the driest part of the day; shutting up the frame early, to encourage the swelling of the fruit evenly together. A good top-heat should be maintained, and slight sprinklings of tepid water applied, at shutting up time, or on favourable afternoons, round the inside of the pit or frame, close to the back and front, which has a good effect in modifying and moistening the interior air. Soakings of tepid liquid manure may now and then be given to the plants, pouring it gently out on the surface over the roots, so that all may share the benefit. At no season should cucumbers, melons, or grape-vines be watered over either foliage or fruit; let all be done by bottom waterings and evaporation; and as a preventive of the red spider, and other pests of a like description, keep ready a mixture of sulphur, clay, and hot lime, made of the consistency of paint, and a dab here and there on the inside of the pit or frame, or on the hot-house pipes or flues, will be found an effectual remedy.

ARTICHOKES.—These must be spring dressed, if they have not been so already. As soon as the shoots appear four or five inches above the surface, the ridges thrown up in the winter must be levelled, and all the earth removed from about the stock to below the part from whence the young shoots spring. Of these remove all but two, or at most three of the straightest and most vigorous, care being taken to select from those which spring from the under part of the stock: the strong thick ones proceeding from its crown having hard woody stems, and producing indifferent heads.

Although the artichoke in a suitable soil is a perennial, yet after the fourth or fifth year the heads become smaller and drier. The beds, in consequence, are usually broken up after the lapse of this period, and fresh ones formed on another site, and now is the best season for this work. When the suckers are eight or ten inches high, select such as have much of their fibrous roots, and are sound and not woody. The brown, hard part by which they are attached to the parent stem must be removed, and if that cuts crisp and tender the suckers are good, but if tough and stringy they are worthless. Further, to prepare them for planting, the large outside leaves are taken off so low as that the heart appears above them. If they have been some time separated from the stock, or if the weather is dry, they are greatly invigorated by being put into water for three or four hours before they are planted. They should be set in rows four feet and a half by three feet apart, and about half their length beneath the surface. Water them abundantly every evening until they are established, as well as during the droughts of summer. The only other attention they require during the summer, is the frequent use of the hoe.

cauliflower must be sown in May; of this we will speak in our next allotment paper.

Let all these seed beds be kept free from weeds at all times. The cottagers' little children may soon be taught to distinguish weeds, guided by their mother. This seed bed or beds will, of course, be in the miscellaneous division, No. 4.

PARSLEY.—An edging must be sown directly; dig some soot in the soil if any to spare.

HERBS.—Any kind of herbs necessary should be immediately planted. A plant of each may be begged from the nearest garden. These things will do on the fruit borders, with the exception of mint; this should be in some nook or corner, as it hinders operations by spreading so much.

RUNNER KIDNEY BEANS. This is a valuable crop to the cottager, for three reasons; first, they need not occupy much room that may be required for other crops; secondly, they are great bearers, and constitute a distinct change for the cottager; and, lastly, they are exceedingly ornamental. Some respect is due to the public at all times, by those who occupy cottages or holdings near to public roads; and we would suggest that, where practicable, some runners be sown in situations of the kind, where no other interest is compromised. We have seen capital crops (making also an excellent display), produced from a wooden fence, by placing strings before it perpendicularly, in a parallel way, or side by side, at the distance of half a yard apart. These strings were detached at bottom, but wound round a nail at the top, and the runners hung in clusters by thousands. We need scarcely suggest plans of stringing or staking to the industrious cottager, who, if possessed of a proper pride in such matters, will devise plans readily enough; we may merely say, that either stakes or strings are eligible, and that the form or direction is a mere matter of fancy; they will grow and bear in any shape except upside-down. The third week in April is a good time to sow them. Soil rather rich and somewhat moist. We are yet constrained to add, that stakes, as for peas, *only three feet high*, will grow them well, provided the points are dubbed, or pinched, directly they reach the top; and that the dubbing (pinching) is continued occasionally afterwards.

We must now conclude our list with a few miscellaneous remarks; first observing that, if the cottager can afford to enjoy the luxury of a good stick of *celery*, he must prepare for a score or two of plants; and if no good-natured gardener is near to furnish him, he must sow a pinch of seed in the first week of April, on a raised bed of rich soil, in a warm corner.

PICKLES.—It is really a pity that the cottager of England does not pay a little more attention to pickles, of which several kinds are within his reach; and now we have a vinegar plant, surely something may be done in this way. Our very excellent old friend, Mr. Rob. Reid, of Noblethorpe, writes us word, that the vinegar plant is becoming common in his district, and that his wife makes all her vinegar from it. He laments with us, that the cottager does not enlarge a little in the pickle way. Having lived some years in the United States of America, he says that our Yankee friends are in the habit of *constantly* using pickles; and that he has seen two hundred bushels of the ox-heart capsicum in an American market at once, intended for pickling purposes.

MY FLOWERS.

(No. 22.)

ONE of the most beautiful annuals is the larkspur.

They are gay and brilliant in themselves, but planted in large patches, or in single beds, they are the most lively and pleasing objects possible. The colours are varied, and as some are very delicate, and others dark, they produce an extremely good effect; particularly as their growth is upright and firm, and they are not liable to be blown about, and thrown into disorder, as is the case with many other flowers. They are hardy, yet, like all annuals, they love the open, sunny border, and their tall bright blooms seem to sparkle in the sun. They will look well in beds, where low, quiet-looking flowers would not make much show; but they should be planted wherever it is possible, on account of their gay appearance.

The hawkweed is a bright elegant flower for single beds, or large patches. The yellow variety is peculiarly gay and pretty; but the purple and the red should not be forgotten.

The sweet scabious is another of the old-fashioned but valuable annuals, that belong to past times and recollections. Its mulberry-coloured tuft-like flowers, so richly dark, form a striking contrast to many of the gayer blossoms flaunting round them; and their scent is full and agreeable. This flower is supposed to be a native of India, but it has so long been cultivated in England, that its original birth-place is not accurately known.

The candied tuft is a pretty, well-known annual, so are the marygolds, both French and African. Their scent is extremely unpleasant, but their colours of rich brown and gold gleam so gaily in the sun, and they grow so richly and flower so freely, that we cannot do without them. A bed of these annuals looks extremely well, or they should be sown in masses, which produce the best effect.

Among the annuals of later days, there are some that have hardy constitutions, and need little care. Among these, I will especially name that long-flowering, bright, and dazzling flower, the escholtzia. It is so fearless of our winter, that the young, self-sown plants spring up year after year, blooming much earlier and more vigorously than they do when sown in the spring. This is, indeed, the case with most of our hardy annuals; and the only objection to their doing so is, that we cannot regulate their form in borders: but with the escholtzia this is of no consequence, for it grows so prettily, and its yellow flowers spread so freely, that it may mingle among other groupes either singly or in clusters, and will enliven the borders till the autumn is far advanced. The young plants are easily thinned out where they grow too thickly, or interfere with other annuals, and will bear transplanting into other places. This flower is a native of the now famous California, and as such must have special interest in the eyes of many, who may fancy its colour emblematic of the region from whence it comes. Happy would it be for some of us, if the golden flower was the only produce of that extraordinary soil! But to the man who loves his Bible, such temptations have few charms. The Christian is privileged to view "the kingdoms of this world, and the glory of them," as from "the top of a high mountain," and he knows by *whom* they are spread out before him; he knows that they are still held out as baits for the souls of man; and that "it is written, Thou shalt worship the Lord thy God, and him *only* shalt thou serve." The cottage gardener may read and hear much of the land where gold lies on the ground like gravel; but let him not seek to gather it up. *Labour* is God's own appointment; it is wholesome both for soul and body; and

the tiller of the soil, with his spade, his plough, his well-earned wages, his peaceful cottage and abundant garden, with the dew of God's blessing, and the sunshine of his love, is a far richer and happier man than he whose pockets are filled with ensnaring gold. Solomon himself has said, "He that maketh haste to be rich shall not be innocent."

A simple and very useful way of obtaining a succession of *moveable* annuals is, by planting them in pots in the following manner: place a piece of broken earthenware or an oyster-shell at the bottom of the flower-pot, half fill it with wet moss closely pressed down, and then fill up the pot with light good soil; in which either sow the seed, or prick in young plants. Let the pot stand in a common pan full of rain water, or let it fill during wet weather. The moss draws in the water, and holds it, which forms a moist subsoil, in which the roots spread vigorously. A pot should not contain more than two plants, unless they are small ones, like Venus' looking-glass, &c. By this very simple means annuals grow richly and healthily; are not withered by dryness, and may be placed wherever they are needed; and they will also flower under trees and shrubs, where they would not succeed at all in the open ground. By often sowing seed, a succession of young plants will be always advancing to take the place of those that are dying off; and by this management a garden may be kept in regular and healthy beauty for many months. Bulbs may be treated in this manner also; and are then safer during the leafless season than when planted in the borders, where they may perhaps be injured by the fork or spade.

To those who live in towns this method of raising seedlings is very desirable. In windows, on the leads, or in the little courts before or behind the houses, lovely annuals may thus be obtained; and the flower-pots ranged closely together, with the spaces between them filled up with moss, which may also be laid round them so as to appear like a rich edging to a flower-bed, would give quite the effect of a garden where nothing before was seen but flag-stones or gravel. To the lover of flowers this simple plan may afford unwearied pleasure and interest at very little cost. In the evening walk moss may be gathered from banks and fields, and under trees; and many lovely things will be seen while it is searched for. One kind of moss has long feathery sprays like the boughs of the spruce fir, and forms a beautiful winter bouquet if placed with taste in a plate or wide vase, with the stems in water; and every flower we meet with at that inclement season should be placed among the delicate green mass. This has a lovely effect—almost like that of a summer nosegay.

Moss is a beautiful and useful carpeting for the soil; it retains moisture for the roots of trees when other herbs are dry; it shelters insects, each of which has its short-lived part to act in God's great scheme; and it warms and beautifies the nests of birds, those inimitable architects, whose wonderful work—done without hands—man with all his skill and science cannot attain to. Moss is found in the coldest and dreariest regions of the earth; it clothes and onlives rocks and mountains where no other plant can grow; and it lies safely under almost perpetual snows, to cheer the short and sudden summer of those polar lands.

Wherever the foot of man can venture there is some gracious proof of God's providential care of the creatures He has made. Moss is nearly the lowest species of the vegetable world; yet how beautiful it is, and it includes eight hundred species. We

do not much regard it in our favoured land; we root it up, it disfigures and injures our verdant fields, although it decorates the woods and thickets. Let us, as we destroy it, raise our hearts with thankfulness to him who has "set the bounds of our habitation" amongst sunshine, and soft showers, and fruitful soil; and let us think that to many of our fellow-men moss is a beauty and a blessing. Surely, every day we live and everything we do, calls to us to remember our Creator, and "the wonders that he doeth for the children of men."

GOOSEBERRY CULTURE.

As the time is approaching for further operations in the culture of the gooseberry, I will redeem my promise to the readers of the *THE COTTAGE GARDENER*, by making a few remarks; and as I have given directions for planting this fruit, I shall offer a few instructions for *pruning* it.

PRUNING.—This should be done in December or January, care being taken to leave such branches in the tree as contain good firm buds, and that the shoots which are left should be well ripened. This is easily ascertained by their appearance; for, if the shoots be not properly ripened, they will look shrivelled, and their buds will be very small and puny. If, on the other hand, the shoots are well ripened, the buds will be strong and firm, the bark of the shoots will have cracked, and a little of the outer bark peeled off. Having selected such well-ripened shoots to be left on the tree, the other shoots may be removed. They should not be cut off close to the branches, but a little of them be left on, so as to form a kind of "spur," say three-quarters of an inch long. Shoots that grow erect should all be cut off, unless it be that the tree is not uniform in its branches, in which case, one shoot that may be inclined to grow upright may be left on, in order that it may be trained into the form of the remainder of the branches, of which I shall speak afterwards. Each coarse thick shoot should be cut off, and that, too, close to the branch on which it grows, as such coarse overgrown shoots seldom or never produce any fruit; but only, like themselves, coarse and worse than useless shoots. As to the quantity of branches and shoots to be left in the tree, there are a variety of opinions, even amongst men who have had much experience in the culture of prize gooseberry-trees. Some will leave as many as four shoots on one branch; whilst others will only leave one at the end of each branch. He who advocates the former, argues "that he is surer of a crop," but, on the other hand, he is not able to grow the fruit so large as he who has less fruit and less branches for his tree to support. He who leaves only one shoot on each branch, says, "If I can only get them *sound* (uninjured by frost), they will grow till the day they are ripe;" but, on the other hand, there is such uncertainty about preventing them from being injured by frost, that I think this is not the most judicious way of pruning, unless protection is given to each bush in the spring, by placing canvass over them during frosty weather, after the bloom begins to show, till about the 17th of May, if the frosts continue so long. I prefer leaving too shoots upon the stronger branches of the tree, and one shoot on the weaker ones. The shoots in all cases must be shortened, leaving them about five or six inches long. If this is done, and with proper management afterwards, you will be able, in an ordinary spring, to secure a crop, and grow them large too.

While on this subject, I will say a word or two on

the implement used in pruning. I am aware I shall be treading on very "ticklish ground," for many men still retain that old-fashioned opinion, that "there is nothing like a knife." I maintain there is "nothing like a pair of pruning shears," for if you are cutting an under branch from a tree with a knife, there are many chances against you, that your knife goes farther than you wish, and you cut out a piece of good upper wood that you intended to remain in the tree; but if you take your shears, you cut out only what you please.

Whether you cut with knife or shears, the shoot cut will, in all cases, die down to the first bud below the wound; and, besides, there is much more ease in cutting with shears to what there is with a knife; not only so, but you are able to cut a tree in half the time with shears that you can cut it with a knife.

MANURING.—Having said thus much on pruning, a word or two on manuring. This should be done in March, (or earlier if the buds begin to swell,) and must be done in the following manner. Take off the soil round the tree $1\frac{1}{2}$ or two inches deep; but the soil must be taken off further than the roots by six or ten inches, which can be easily ascertained by the size of the tree. As a general rule, the roots will be as far-spread as the top, or nearly so. Having taken off the soil, manure must be laid on the whole of the surface where the soil has been taken, but the greatest weight of it should be placed farther than the roots extend, *as the ends of the roots should find the manure, and not the manure the ends of the roots.* There is no necessity for manure to be placed near the "bole" of the tree, as this is of no utility whatever. How often we see trees manured close up to the "bole," or stem, and none where it ought to be, viz., past the extremity of the roots. It may be asked what kind of manure is to be preferred? This can be best answered by consulting the nature of the soil; if the soil be light and sandy, with a sandy or loose subsoil, cow-dung is the best, as it retains its nature and moisture longer than any other kind of manure. If, on the other hand, the soil be stiff and heavy, I like good stable-dung, as it is warmer and rather stronger than cow-dung; but where neither is at hand, good rotten pig manure will answer very well. The quantity used should be varied, according to the richness of the soil where the trees are planted; for I believe greater harm is done by over manuring than by giving them too little; at the same time, I would advise that a moderate quantity should be used, say a good large basketful, to a four-year-old tree. Having laid on the manure, it must be covered with soil nearly two inches deep. Upon these beds, or where the trees are planted, onions may be sown as soon as possible afterwards, as onions will grow very well about gooseberry-trees, without injury to either, if not sown under the trees. I prefer this mode of growing onions, as much ground is saved by such a mode of procedure.

TRAINING.—No time should be lost now, but training should be immediately proceeded with. This is done by what we call "hooks and props;" these are chiefly made of hazel sticks, varying in length from 18 to 24 inches. *Hooks* are made by cutting them off close to a small branch, immediately below the branch, leaving about $1\frac{1}{2}$ inch of it on to form the hook. *Props* are made by cutting off all the small twigs, leaving the top something like a hay-fork, only the prongs should not be above $1\frac{1}{2}$ inch long. The form of the tree to be trained should be what is generally termed a "table trellis." The branches should be trained horizontally from the bole, so that

the tree should be as near as possible flat on the top. This is done in order that the fruit may hang down on the under side of the tree, without being in danger of being injured when growing by hanging against the branches, or being injured by the thorns growing on the trees. Great care ought to be exercised, in placing the hooks and props, that the buds be not injured or destroyed. When a shoot grows nearly upright, and it is necessary it should be brought down, to make it uniform with the others, it should be done by a little at a time; for, if it is done all at once, it will be in danger of breaking. This bringing down is effected by thrusting the hook a little further into the ground every now and then, till the shoot be brought to its proper position.

INSECT ENEMIES.—In April and May, when the trees begin to grow, the trees should be regularly looked after, as the gooseberry has many enemies, in the form of the Borer, Red Spider, Green Fly, and Caterpillar. The borer, or white caterpillar, is very destructive to the fruit: as its name indicates, it bores or eats little round holes in the fruit. It is easier to destroy than any other insect that the gooseberry-tree is infested with: its presence is detected by observing some of the leaves curled up at the edge; on examining these, the little insect will be discovered. The only way of effectually destroying these is to look over your trees, take off such leaves as have the appearance of its presence, and crush them. The red spider (see p. 63) infests the tree, or the leaves near the bole of the tree. It is only to be discovered by a close observer, and that only when the sun is shining, as these insects, when the sun is down, remove to the under side of the leaves; but when a tree is infested by red spider, the leaves will have a yellow and sickly appearance. An old tree is more subject to the red spider than a young one. The way I destroy these is to water them when the sun is shining (but not too hot) with a solution of tobacco-water, for three or four days consecutively, from a syringe or rose watering-pan.

The green-fly (*Aphis grossulariæ*) infests the ends of the young shoots, and in many cases stops their growth. The best method of destroying these insects (and I have tried many remedies) is tobacco-water used as above; in fact, I know of no better method of destroying the caterpillar also than by frequent waterings with tobacco-water.

SUMMER TRAINING.—Should you be happy enough to avoid all these pests, you may then summer-prune. This is too often neglected even by men who have had the benefit of long experience. This is done by taking off, with a penknife, the extreme ends of the young shoots that are growing near the bole of the tree, or, in fact, throughout the branches, with the exception of a few of the shoots that are near the extremities of the branches: these should be preserved with all possible care, for in these young shoots are the future hope of the grower. When these young shoots have grown to a good length, they should be protected from being blown off, by either placing sticks on each side of them, or tying them to a stick with a little bast matting.

THINNING FRUIT.—In June it is necessary that some of the fruit should be removed, if they are close together, or many on the tree. This is what we term "thinning," and requires, I think, as much skill as anything in gooseberry growing. Care should be taken not to remove the soundest fruit, for often the soundest fruit is the least at this time of the year. I will convey my ideas as clearly and explicitly as I can, but, after all, no advice, however explicit, will

teach so well as experience. The soundness of the fruit may be judged as well by its colour as anything. If sound, it will be a very healthy green, with the flower "or dew bit" (as it is sometimes termed) well formed and well closed up. It will hang very straight down, but if injured by frost it will hang with its flower or dew bit on one side. No three-veined fruit ought to be removed unless there are two together, in which case one ought to be removed, but the best should be left on the tree. Endeavour to leave on the longest and best formed fruit, even if all is sound.

FRUIT RIPENING.—About two or three weeks before the longest day (21st June), trees generally will cease growing till the second sap rises. About the 21st of June they will commence growing again very fast. The fruit, if sound, will generally swell very rapidly till it is ripe. Be careful, if you have a very fine fruit, to remove all the thorns from the branch near it, as the least scratch will have a tendency to burst it when growing very fast.

WATERING.—About the 14th of June, I generally give my trees a little liquid manure, in order to assist them in the "second sap," taking care, however, not to give them too much, for, as I said relative to manuring, too much is as injurious as too little, or even worse than giving them none. If they get a little liquid manure applied round the roots once a week, it will generally be sufficient. If the weather is dry during the summer, a little clear water will be of service to the trees, applied from a rose watering-pan after the sun has gone down in the evening.

If these directions are followed, the parties who act on them will be recompensed for their trouble by seeing good fruit and pretty trees of very luxuriant growth. I am afraid I have extended these remarks too far already, or I might have said a little on raising and managing young plants. This I will leave for a future communication.

J. TURNER, *Nurseryman.*

Neepsend, Sheffield.

'THE BEE-KEEPER'S CALENDAR—APRIL.

By J. H. Payne, Esq., *Author of the "Bee-keeper's Guide," &c.*

FEEDING.—I must again press upon all persons who have weak stocks the necessity of feeding. The bees are beginning to bestir themselves when the sun shines warm; and inexperienced bee-keepers are apt to think that their stocks are now past danger, and so take no more care of them. But, the truth is, that the early spring months are the most dangerous of all; many stocks that have stood the winter die in the spring, which a few ounces even of food would prevent. There is nothing to be gathered in the fields till April, and in cold late seasons not much before even May. Stocks should be watched well in spring, and weak ones fed liberally. As soon as they begin to stir, a little food should be given them every other day, or thereabouts, until they refuse to take it, for they will neglect the food given them as soon as they can gather honey.

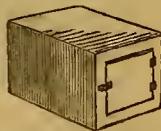
METHOD OF FEEDING.—The best manner of giving food to bees in a common straw hive is to put it into a dinner-plate, cover it with a piece of writing-paper thickly perforated, and to place it under the hive; but should there not be sufficient room for the plate without touching the combs, the hive may be raised upon a wooden hoop the exact size of the hive and about two inches deep, or upon a piece cut from the bottom of an old straw hive. The food must be given after sun-set, and the plate removed by sunrise the next morning. The entrance must be

stopped while the food remains in the hive; a piece of soft paper answers remarkably well for this purpose.

SUPPLY OF HIVES.—To those persons who are disposed to adopt the very simple method, of managing their bees, that I have for so many years successfully followed, I would say, procure a supply of the *Improved Cottage Hives*, a drawing of which is given in page 239; also of small hives eight inches in diameter and seven inches deep, flat at the top, with a bit of glass in one side covered by a shutter. This hive is in shape the same as the large one, and with a hole in the top, covered with a piece of straw-work in the same manner.



BONES AND BELL GLASSES.—Should boxes be preferred, those which I use are made of inch-thick deal, nine inches square, and eight inches deep—inside measure; with a piece of glass, six inches by seven and a half, let in on one side, and covered by a shutter to exclude the light. But glasses may also be used with equal success if the light be effectually excluded. I usually put on a bell glass first, and when partially filled raise it up and place between it and the parent hive the small hive or box above described. I say *partially* filled, because, if allowed to remain till filled, the bees would very probably swarm, which the additional room and ventilation given them, by placing either the box or small hive between the glass and parent hive, will prevent.



ADAPTING BOARD.—A good supply of adapting boards must also be in readiness. They should be made of mahogany, for it will allow of being worked very thin, without the risk of warping when used. They are a quarter of an inch in thickness (*this is important*), twelve inches square, with a circular hole in the middle, four inches in diameter.



FLOOR-BOARD.—The floor-board (on which the hive stands) may now be cleaned for the last time before the honey-gathering season commences.

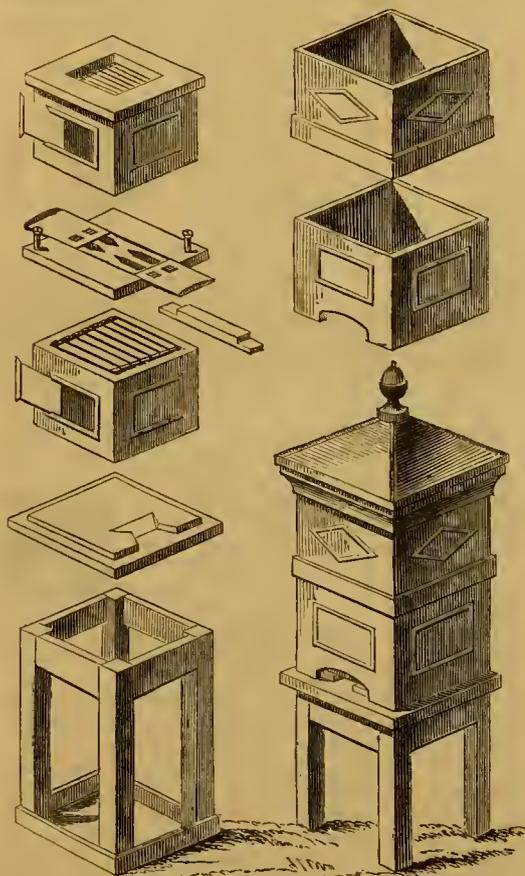
WATER.—This must be supplied to the bees immediately, for it is in the spring that they have the greatest occasion for it. The plan that I have adopted is to have a trough of wood, or stone, eighteen inches long, twelve inches wide, and six inches deep, sunk in the ground in the immediate vicinity of the apiary, with a piece of thin wood, thickly perforated with small holes, made to fit loosely into it. This perforated wood, when the trough is filled with water, will float upon its surface, and save the bees from drowning, a mode of death causing the loss of numbers, should they, for want of this little accommodation, be obliged to go to an open cistern or pool.

QUEEN WASPS.—The destruction of queen wasps, which are now beginning to make their appearance, will prove the best security against their progeny, those formidable enemies of the bee. In April and May they are very easily captured, and every one now destroyed would probably have been the founder of a nest, which may be computed at 30,000, at the least.

MOths.—But moths are by far the most dangerous enemies the bees have to contend with. It is the caterpillars of these moths which gnaw and destroy the combs; and they would soon be ruined by these insects, if the bees did not offer the greatest opposition to their ravages. The perfect insect (*Galleria*

correana and *Galleria alvearia*) may be seen fluttering about the hive at sunset, from April to October, and should be promptly destroyed whenever observed.

AMATEURS' HIVES.—Having thus far given my plan for managing bees in the *Improved Cottage Hive*, I would now address a few words to the amateur, for the purpose of recommending to his attention one of the best amateur's hives that I have ever seen. It was invented last year by Mr. Taylor, author of "The Bee-keeper's Manual," and is called "Taylor's Amateur's Bar-hive." It is made and sold by Geo. Neighbour and Son, 127, High Holborn, London, with directions for its use.

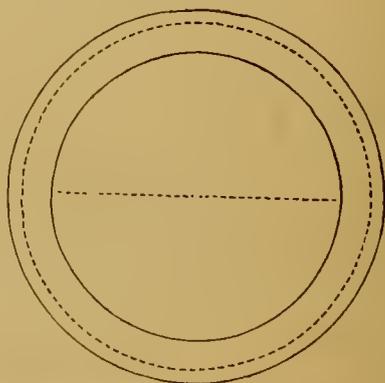


By the introduction of *bars* each comb is made available, whether for separate extraction or for experimental purposes. Indeed, in this hive, both the bees and their store are at all times completely under the command of their proprietors. From this hive, fine honey-comb may always be obtained, swarming effectually prevented, and artificial swarms, when required, insured. I was kindly favoured with one of the above hives from the inventor last spring, in time to have a swarm hived into it on the 28th of May. In about three weeks from that time, I found it necessary to put on the upper box; and early in September I took it off, containing thirty pounds in the finest honey-comb, yet leaving a full supply in the lower or stock box, for the bees during the winter and spring. The stock is now in the finest health and vigour; and, should the ensuing season prove a favourable one, will, in all probability, afford

a much larger quantity of honey. Another great advantage from this hive, above all others, is, that *a comb may be extracted at any time*, which, where glasses or boxes are used, cannot be done; these must be filled before they are removed, or much loss of time is occasioned to the bees.

BEE-FEEDING.

I NEVER could succeed in feeding at the *bottom* of the *hive*, or with the apparatus attached to '*Nutt's boxes*,' and I have, therefore, for some years past, fed them with coarse sugar placed under a bell-glass at the top; the glass standing in a circular zinc trough, four inches in diameter across the inner part, about three quarters of an inch deep, and one inch wide, which I have found to be an effectual preventive of dampness in the boxes. The moist exhalations ascending to the glass, and there condensing, descend into the zinc trough, which can be emptied at pleasure. I have not lost a stock since I adopted this plan, and if the information is worth noticing, it is at your service.



The circular dotted line shews where the rim of the glass rests. The inner circle measured across, as shown by the straight dotted line, is four inches wide. After the feeding becomes unnecessary, a flat top of any sort can be substituted for the trough, &c., and when needed, the bell-glass serves for the bees to work in upon the depriving system. The glass and trough for draining and feeding are replaced at the latter end of September.—*W. Crowe, Kimber's Cottage, Maidenhead.*

[In addition to the above testimony, and that of Mr. Payne, in favour of feeding bees at the top of the hive, we have the following from the Rev. J. Byron, of Killingholme, Lincolnshire, who even cuts out the top of the common straw hive for the purpose.—*Ed. C. G.*]

"I am rejoiced to find Mr. Payne, whose name is so well known to the bee-keeping world, amongst the contributors to THE COTTAGE GARDENER. In page 240, alluding to the feeding apparatus which I described on a former occasion, he says, that to feed bees at the top of the hive is, in common straw hives, impossible. I do not know what difficulty Mr. Payne sees in the case; I find none. At this present time, I am feeding two last year's swarms in common straw hives. I take the crown-pin out of the top of the hive, fit the feeder with its glass over the hole, then turn an empty hive over the feeder and glass, and, on the top of the hive, place an earthen pan, to keep it firm, and to shoot off the rain. The liquid with which I am feeding them is Spanish honey (which costs 6d. per lb.), and ale and

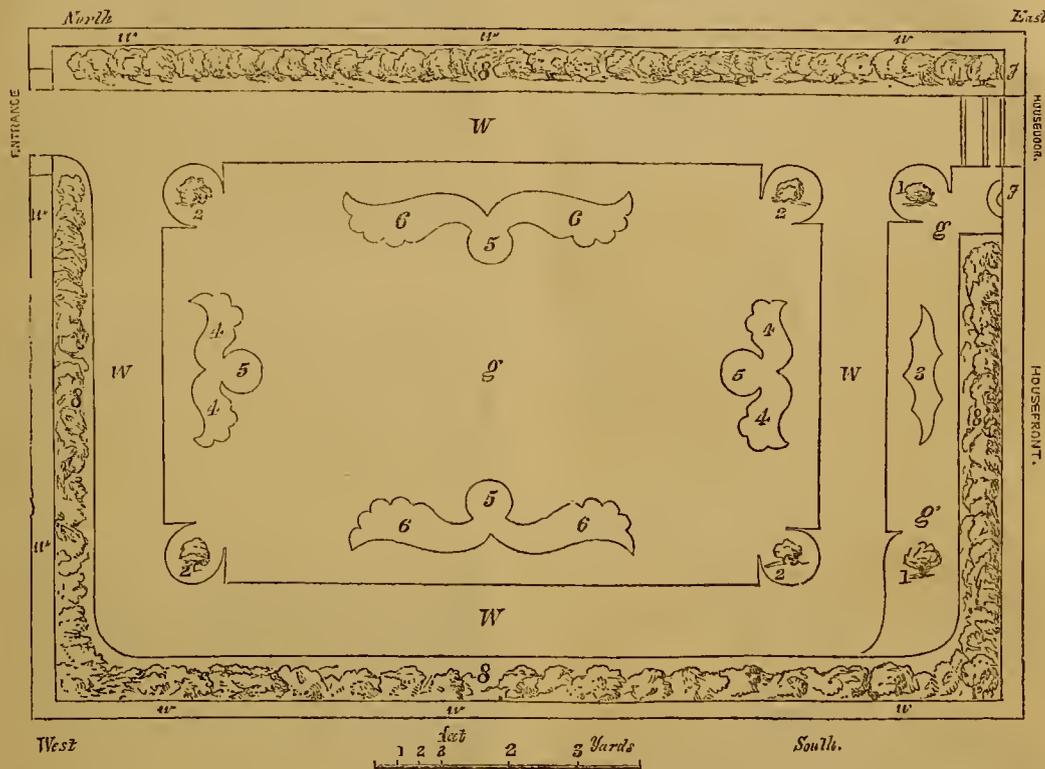
sugar (a pound of sugar to a quart of ale, boiled five minutes), in about equal quantities."

GARDEN PLANS.—No. I.

HAVING in previous numbers given a detail of the principles and objects which ought to regulate the

formation of our gardens, we now proceed to offer a few illustrations, commencing with the garden such as is usually connected with small houses in the neighbourhood of our large towns, and which may be called appropriately,

THE SMALL SUBURBAN GARDEN.



1. *Paeonia herbacea* and *P. arborea*.
2. Scarlet *Pelargonium*.
3. *Verbenas*.
4. *Pansies*.
5. *Roses*.
6. *Fuchsias*, *Calceolarias*, and *Annuals*, mixed.

7. *Climbers*—as *Clematis*, *Wisteria sinensis*, *Climbing Roses*, &c.
8. *Shrubs*, intermixed with herbaceous plants, *Dahillas*, and, near the edge, *Annuals*.
- g. *Grass*.
- w. *Walks*.
- w. *Walls*.

CALCEOLARIAS.

MR. BEATON'S concluding remarks in Number 18 have set me to work again to write to you. I have read his essay on calceolarias, and as I have seen many thousands of them grown, I am tempted to say a few words on that subject. I formerly worked for an amateur gentleman for about ten years, and he used to grow about two thousand a year from seed. I will just name what I remember about the treatment, &c. I shall begin with the crossing, as it is sometimes called. When the calceolarias were in flower, there was my master in the greenhouse with his book, and balls of cotton or worsted of all colours, and a short piece was tied by him round their necks, until a bit of each colour had been used, then he began again with two bits of colours, and so on, until all that he thought well was worked on, and all noted down in his book. Then, when the seed was ripe, each pod had its little paper bag, and was marked. As soon as dry, the seed was sown in (I think) 48 pots, the earth being partly black bog, or peat, and his plan was to sow the seed in small drills in the pots, and a piece of flat glass was laid on the top of each pot, to keep the earth from drying

fast, and, for the same purpose, they were put in a cold frame, on the north side of a high broad fence, and a thin canvass, tent-like, over the top, to prevent the sun shining on to them, but quite open to the north. I do not remember the exact time of sowing, but it was early enough to have the seedlings pricked out from the seed pots, and then each was put into small 60's, and then into 48's to winter in, in cold frames or pits with earth banked round them, and rolls of mats over the top. Then, when in spring the seedlings filled the pots with roots, they were repotted, and when the weather got warm, and they began to get tall, they were placed in half-sunk pits; the plants above the level of the ground were like four-light boxes, and when the sun had gained power, the boxes, or other part of the pit, were turned round to face the north. There the seedlings remained until they were in flower, when the best were picked out for the greenhouse; the next best for beds and baskets, and the remainder turned out to the rubbish-heap. My master never made cuttings of any of them, and only a very few of the best were saved.

Regarding an observation at page 162 on *furze*, I

beg to say that if small plants can be obtained, say six or eight inches high, they will bear transplanting and grow well with a little watering in the spring. I by chance had some furze offered to me about this time last year; it was some that had been left after thickening the bottom of a garden fence, but which all died afterwards. The little ones which I picked out, and planted in a row, made shoots 18 and 20 inches long during the last summer; so that if furze may be required, and can be obtained young, a dependence may be placed on its growing.

I enclose a few grains of what is called *six-rowed black barley*. I do not know if you may have seen it before or not. I sent some to my brother in Oxfordshire, who has his half-acre; he planted it, but it did not ripen, which led us to suppose that it should be sown or planted in autumn. I put my grains, three each, in 60's pots, forwarded them under glass (cold frame), and turned them out in spring, when I soon found there ought not to have been but one in a pot, for they stooled, or shot out so very thick all round the bottom. My brothers did the same, which led us to think they ought to be dibbled in at least six inches apart. Well, I think 17 of mine grew and brought forth fruit, not 30, 60, and 100-fold, according to Scripture, but I think full 600-fold; for there were more than 200 ears, and many of the ears had near 60 grains in each; and I have no doubt if they are planted thinner it will be still more productive. I sent the greater part of my seed again into Oxfordshire, in order that the little farmers there might try it in the autumn. I did not plant mine then, but purpose to put a few grains one in a pot as before. I have thought it would be very suitable for the cottage farmers, if it can be brought into cultivation. I had many people in to look at it, and all considered it very fruitful. W. W.

TANKS.

[Our correspondent, "An Owner of Cottage Allotments," writes to us for further information, which, as we cannot obtain it for him, induces us to insert his note entire. We shall be obliged by his sending us his Cottage Allotment Rules.—*En. C. G.*]

"I hope you will not think me very troublesome, if I invite a little further explanation on the subject of tanks, nor "Senilis" think me uncourteous, if I say that his answer to my objections is not satisfactory to me. He only tells us that the cost of constructing a tank with concrete is one-third less than with brick, but he gives no estimate of the cost, by which one might judge whether such a tank would be within the reach of a cottager, (if it is of cottagers that we speak), or whether it would be useful to him when constructed. I have great doubts upon both points. A concrete tank could only, of course, be made in a locality where gravel was procurable. I think a little clay to puddle the bottom of such a pit as I spoke of, would be much more generally found than the gravel. Senilis says that it would take "just as much time to execute as a tank with concrete sides and bottom;" and afterwards, that "the work of a very small tank may run over three months or more." The pits I speak of may be made by any labourer in as many hours, if he had a load of clay carted for him; and, I need not say, that the carting of the clay would not cost more at any rate than of the lime required for the concrete. I wish that Senilis would have been kind enough to explain the advantage of the walls battening inwards—how the interior soil was to be thrown out after the covering arch was formed—and how the sewage was to be

drawn off by the discharge pipe; in other words, how he proposes to get access on a level below the bottom of his tank, which is four feet or even two feet beneath the surface. Again, I doubt whether a cottager would ever have sewage in quantity to need the tank, even at the dimensions Senilis now gives, which are half those which he before proposed. Certainly his former expression led me to imagine that he was proposing not an "extreme of width and depth," but rather the contrary. If you will do me the favour to publish these observations, they may draw from Senilis, or from some other correspondent, some explanations or further suggestions on a matter in which not only I, but I believe several persons, feel much interest. Though I do not estimate the sewage of a cottager at anything like the number of gallons Senilis supposes, I think there is very great loss by their wasting what they do supply."

VERMIN ON PIGS.

In *THE COTTAGE GARDENER*, p. 258, I see you recommend the application of Scotch snuff to kill vermin in pigs. I have never tried the application myself, but I am convinced such an application is decidedly objectionable: should there be no more than one pig in the sty, it is almost certain the snuff would get to the eyes and nostrils of that one and cause great irritation; and should there be more than one, then it would be quite certain to have a very injurious effect. Pigs, when much irritated, become very violent, and are likely to injure themselves by breaking over or through the fencing of their cote. Hogs' lard, Russian tallow, or kitchen stuff, well rubbed on pigs affected with lice will infallibly destroy them; so will train-oil, seal or linseed-oil; but these latter as they dry will cause the bristles of the pig to become matted and stiff, and on that account they are objectionable. Olive oil will kill lice instantaneously, and it will have the same effect on bugs; besides killing the lice, these greasy applications are very beneficial to the pig's health; it loosens the scurf, softens and cleanses the skin. I have seen so much improvement made in the appearance of pigs that have suffered from poverty and neglect, by well greasing them two or three times, and then thoroughly washing it off with warm-water and soap, as to be hardly recognised as the same animals.

To wash a pig requires some little patience; the animal is not to be seized and thrust into a tub, but rather to be supplied with some good food in its trough, and while it is feeding the washing may be effectually accomplished. W. H. BOSSOM.

[We have no doubt that oil would destroy lice, as our correspondent states, and, for the reasons he gives, it is to be preferred to Scotch snuff for the purpose. We have seen the latter, however, employed successfully.—*Ed. C. G.*]

TWELVE VERY SUPERIOR CINERARIAS.

Beauty of St. John's Wood—white, bordered with light crimson, 2s. 6d.	Maritana—purplish red, with a white circle, 3s. 6d.
Amanda—beautiful porcelain blue, with white round, a dark disc, 7s. 6d.	Newington Beauty—flower large, white centre, and purple crimson margin.
Bellini—fno purple, self; of excellent shape, 7s. 6d.	Rosey Circle—light centre, deep rose margin, of excellent properties.
Coronet—very large, white and rose, 3s. 6d.	Royal Crimson—a good self; of a deep rich colour, and a free flowerer.
Grandissima—large dark blue, very dwarf, 3s. 6d.	Tom Thumb—white centre, edged with purple crimson.
Favorite—beautiful light sky blue, a free flower of excellent habit, 2s. 6d.	Vernalia—shaded blue, with a red circle; a good variety of good habit.

EXTRACTS FROM CORRESPONDENCE.

PROTECTION FROM MICE AND BIRDS.—Have you ever seen a cat chained to a small dog-house, and kept in the garden to keep the mice off peas and beans at night, and the birds in the day-time from small seeds? Any one that tries, will find it to answer well. The house can easily be carried from place to place as may be required. A young cat is the best to train; and, if kept for a few days near the dwelling-house, and well fed, pussey soon gets reconciled.

J. M.

SCARES.—To prevent hares destroying plants, as complained of by your able contributor at p. 215, the best plan is to place four white stakes, about ten inches high, so as to form a square or a lozenge shape round the plants to be protected; then tie round the tops, from one to the other of these stakes, a strong white cotton thread, and a second thread about the middle of the stake. This makes a kind of fence, into which hares and rabbits do not seem disposed to venture. I have also found this same thread plan effectual in preventing the thrushes and blackbirds getting the young peas out of the ground; and rooks may be deterred from destroying the potatoes on the moss land here in Lancashire by the same system; the thread being suspended over the ridges on stakes just above them. A cheaper preventive can scarcely be recommended, thread being procurable at the rate of 300 yards for a penny.—**M. SAUL.**

GROWING CACTI IN ROOMS.—I have a small miscellaneous collection of *cacti*, *stapelia*, &c., in all about 40. These I keep during summer in a tall frame under glass out of doors, and during winter in my parlour window which looks to the south. Under this treatment, with an annual shift in the spring, the plants do very well, and are the objects of much interest to many passers-by. Sometimes people even knock at the door to know if I sell plants! *Cactus Flagelliformis*, *C. Mallisoni*, being of a pendant habit, are suspended by wires from a rod attached to the ceiling for the purpose; the *Echino-cacti*, in small 60s. being placed in narrow shelves parallel with the window sashes. I have been at this *hobby* four or five years. I have had blooms on *cereus speciosissimus* five inches across in my parlour window, without artificial heat, and on a plant many years previously in my possession. My practice, therefore, you see is of a kind to popularize the culture as window plants of this wondrous tribe.—**A POOR MAN.**

[We have the address of the writer, and he promises us an account of his mode of growing cactaceous plants.—**ED. C. G.**]

FRAME FOR RHUBARB.—When I saw the drawing at p. 203 of a frame for forcing rhubarb, it brought to my mind directly the frames in which glass is packed and sent to plumbers and glaziers. I got one from my tradesman, and as they are higher and narrower than what is recommended in *THE COTTAGE GARDENER*, I got my labourer to stretch it a little, and he divided it into two, so as to make two good covers, which, though not quite so light as you recommend, will still be useful.

ECONOMY IN MANURE has for many years been my aim; but it would be useless to repeat my plans, since they are nearly allied to your own instructions. Thus much I may add: I keep three heaps; one I am using from, one rotting, and the third making. Acting on the principle which I hold good, that

every small garden attached to a house will manure itself, if the vegetable matter discarded from that house be thrown on the heap, I invariably sell the dung of my old hot-bed. This remark may perhaps be worthy of your insertion. For the information of your readers, I may also add that, in my greenhouse, I grow *Lycopodium Cæsius* and *Denticulata*, *Campanula Japonica* and *Lobelia Gracilis*, in flower-pots, suspended from the rafters by copper wire, with great success. They always produce a most graceful effect, and answer better than those on the stages: and there is also room for so many more plants in the house.—**T. E. M., Stoke.**

PUZZLE FOR PLANTERS.—Mr. Editor, will you be so kind as to insert the following geometrical puzzle, which I have seen, some thirty years ago, in an old book. I recollect there was a woodcut, showing how the trees were to be planted, but I have forgotten it long since. Some of your numerous readers may find it out; at any rate, it will be some exercise and amusement to the young branches of the large family you call "our readers." It is, "how to plant nineteen trees in nine straight rows, and nine trees in every row?" The puzzle was in a kind of verse; but I fear I have forgotten it,—but here it is to the best of my recollection.

"I am desired to plant a grove
Of myrtle trees, for her I love.
This ample grove I must compose
Of nineteen trees, in nine straight rows;
Nine trees in every row must be,
Or else her face I ne'er shall see."

Senilis.

SCRAPS.

BEAUTIFUL BRITISH PLANTS. No. II.—**DELPHINIUM CONSOLIDA.**—Field Larkspur.—A beautiful annual, occasionally met with among corn. About two feet high, with deeply cut leaves, and flowers of a vivid and permanent blue; plentiful in Cambridgeshire and adjoining counties.

ACONITUM NAPELLUS.—Monkshood.—A free flowering herbaceous plant. Rather rare in thickets and by the banks of streams. Two feet high, with light blue flowers; a good plant for the shrubbery or mixed parterre.

PEONIA CORALLINA.—Pæony.—A splendid plant for the shrubbery border, with large crimson flowers and yellow anthers; said only to have been met with on the Steep Holmes Islands in the Severn. We recollect botanising some years ago on the banks of the Yore, below Masham, and meeting with a pæony in some quantity, probably an escape from a garden, but not being in flower we could not with confidence refer it to this species. The principal varieties of the common garden pæony belong to *P. albiflora*.

BERBERIS VULGARIS.—Barberry.—Wherever a shrubbery is formed, this fine plant, a native of our hedges and thickets, should be found; with its pendulous racemes of sweet yellow flowers, succeeded by the bright red fruit, it is always an object of beauty. We noticed it growing on the ruins of the monastery at Easby, near Richmond, Yorkshire, a few days ago. A decoction of its bark and wood is reputed to be an "unfailing cure" for the jaundice.

EPIMEDIUM ALPIMUM.—Barenwort.—An elegant little plant, with heart-shaped leaflets and brownish red flowers, with yellow nectaries growing about eight inches high; found occasionally in alpine woods, but has very slender claims to be considered as a native.

* These two plants are now called *Cereus flagelliformis* and *Cereus mallisoni*.

We have heard of its being planted in some situations on purpose to deceive the unwary botanist.

NYPHÆA ALBA.—White Water Lily.—This fine aquatic plant should have a place in every garden where there is a pool of water, for the sake of its large white flowers with yellow stigmas. We have met with it in our rambles, covering many a stream with its fine foliage and flowers, floating on the surface of the water.

NUPHAR LUTEA.—Yellow Water Lily.—This plant should always have a place along with the preceding: it is more frequently met with in lakes and ditches. The flowers have a strong smell of brandy. We have both these growing freely, plunged in old baskets and sunk in the water. It grows plentifully in the mill-dam between Billingham and Norton, and is very beautiful when in bloom, as seen from the bridge on the turnpike-road.

MECONOPSIS CAMBRICA.—Yellow Poppy.—A very rare and interesting plant, with pinnate leaves and large orange yellow flowers—which should be cultivated in every select collection.

RÆMERIA HYBRIDA.—A very pretty annual, found in the corn-fields of Cambridgeshire and Norfolk, growing about a foot high, with tripinnate leaves and dark violet-blue flowers. Succeeds in any garden soil.

GLAUCIUM LUTEUM.—Horned Poppy.—A biennial herbaceous plant, with hairy cut leaves and large golden flowers, succeeded by a long curved pod, well worth the attention of the curious, and, although a native of our sandy sea coasts, will thrive in almost any soil or situation.

CORYDALIS SOLIDA.—Purple Fumitory.—An interesting little plant, with biternate cut leaves and purple flowers, well worthy a place in the flower garden on account of its early flowers; although a doubtful native, it is thoroughly naturalised in many places in this country.

CORYDALIS LUTEA.—Yellow Fumitory.—A beautiful plant for rock-work, producing its flowers in the early spring months, and continuing the whole of the season; frequently met with in old ruins. We have seen it abounding on the walls of Fountain's Abbey and Fountain's Hall, near Ripon.

CHEIRANTHUS CHEIRI.—Wallflower.—This old favourite of the garden, so much admired for its fragrant early flowers, may be met with on many of the old castles and abbeys of this country: it is plentiful on the walls of Skipton Castle, in Craven; on Richmond Castle, where many of the plants are already in flower (February); and on the chalk cliffs near the sea, in the south, abundant.—*S.—Durham Advertiser.*

THE MOUSE AND THE PEA.—The plan which I have found the most effectual in preventing the destruction of peas by the mice, as complained of by your correspondent, T. R. Lloyd, at page 226, is simply this: I mix a small quantity of arsenic in some oatmeal, or pour a little upon bread previously sprinkled with water, to enable the arsenic to soak into it. I then put it upon tiles or pieces of broken pots, covering it with another pot, so that nothing but the mice can get at it, and in this way I destroy them with very little trouble, and at small expense.—*M. Saul.*—[Arsenic thus administered will kill mice, but we never recommend it. Nux vomica boiled for some hours, and then wheat soaked in the liquor, is quite as fatal to a mouse, yet does not hurt the cat, which may devour the poisoned thief.—*Ed. C. G.*]

PARSNIPS FOR PIGS, &c.—A writer in that excellent

agricultural paper, "Bell's Weekly Messenger," says that he has cultivated the parsnip for more than 15 years, and adds:—"I fully believe one acre of parsnips will give more weight of bacon or pork, than one acre of barley; though, mind, I am not advocating the feeding pigs or cattle with parsnips alone when fattening. My mode has been to boil the parsnips and mix in a small quantity of meal when hot; though, of course, where fattening hogs to a large extent is carried on with them through the summer and early autumn months, the parsnips must all be boiled and put away, in casks or vaults, by the end of April, and mixed afterwards with meal as wanted. They will keep many months when boiled, and well pressed and rammed into casks; and they are most excellent as food for horses, sliced raw; and I venture to affirm that any one giving them to farm horses or hacks during the winter, needs little or no corn, and will have them look in the coat equal to the middle of summer, and equal to any fair work that may be required of them."

EARTHING UP CELERY.—Mr. W. Cole, gardener to H. Coyle, Esq., at Dartford, says, that not earthing up celery until it has acquired a considerable size, is certainly the cause of its being stringy. Long exposure to the air and light, makes the tissue of the leaves harder than if they are grown in comparative darkness.—*Horticultural Society's Journal.*

TO CORRESPONDENTS.

BEEES IN CONSERVATIVE HIVES (J. M. Wayland).—We do not suppose that you can buy bees in these, unless casually at an auction, where an amateur's apiary is included. Your best plan will be either to buy a stock now, and hive the swarms from it into such hives as you may wish, or else to have your chosen hive, and get some keeper of bees to put into it one of his May swarms.

DRAINING A GARDEN (A Suburban Subscriber).—Unless we knew the form, and the exact levels of your garden, it is quite impossible for us to give you any specific directions. Sink a main drain through the centre of the garden, so deep as to get through the cake, which you say is over your gravelly subsoil, if that cake is not more than three feet below the surface. This main drain must have an outfall into some ditch at the lowest side of the garden. Side drains, 6 inches less deep than the main drain, and 24 feet apart, as your soil is light, must fall into the main drain. As your garden has in it several old chestnut and other trees, we recommend you to use one-inch pipes, puddled over with clay. Other drains will soon get choked up with roots. The cost ought not to be more than £6 per acre. Unless the well in the centre of your lawn is very deep, and never containing much water, it would be of little or no use for draining purposes.

YELLOWLY'S SPADE HUSBANDRY (W. T.).—We cannot give you any further information. "The British Farmers' Magazine" is published at 29, Norfolk Street, Strand.

SURFACE OF A PLOT OF GROUND (Andrew Moffat).—We cannot, from your rough sketch, answer your question, nor is it quite within our province. You may get, second-hand, for four or five shillings, "Davis's Complete Treatise on Surveying."

IRON STAKES FOR ROSES (W. W.).—You need not be afraid of using these, they will not injure the roots. Thanks for the Black Barley, which we have distributed. We accidentally mislaid your letter, or we should have noticed your query before.

OLEANDERS (A Young Beginner, Ipswich).—We think you will have, from Mr. Beaton, all the information you require on this subject. *Heaths*, we have no doubt, will soon be noticed by the same good authority. The name of your plant is *Cineraria Peltata*. It is a native of Mexico, and first introduced here in 1812. Do not hesitate to ask questions; whatever a correspondent may want information upon is important to him, and we make that the chief consideration.

FUCHSIAS, &c., IN BEDS (R. D.).—Do not plunge these into your beds whilst remaining in the pots. It will not save you any trouble, but rather increase it, for the roots of the plants will fill the pots, and grow through the hole at the bottom, rendering repotting in the autumn unavoidable. Besides, the plants will neither grow nor blossom so well.

TUBEROSES (H. R.).—Keeping these in an outhouse must be too cold and dark for them. Put them into your kitchen window, and treat them exactly as is directed at pp. 181 and 182.

FLOWER SEEDS (W. J.).—You can get those you mention of any of the Seedsmen or florists who advertise in *THE COTTAGE GARDENER*.

HOT-BED (A New Recruit).—If you only require this for plunging seedling pots in, you need not put on any earth, but merely a layer either of sand or of coal ashes, sufficient in depth to bury the pots in down to their rims. Answers to your other queries next week,

FEEDING-TROUGH FOR BEES (*A Young Recruit*).—In answer to your query about the size of that described at p. 186, the Rev. Mr. Byron states:—"In the feeding-trough which I use the diameter of the hole A, through which the bees ascend, is 1½ inch; and that the width of the trough BB, running round the hole A, is also 1½ inch; and that the diameter of the glass with which I cover it is rather more than five inches. I would recommend him first to procure a glass, and have the groove CC made to receive it; and then the trough BB can be made as wide as the distance between A and C will allow. If he has the feeding-board made first, he may find a difficulty in procuring a glass that will fit accurately." Mr. Taylor's hives will be described by Mr. Payne in this and following numbers.

PINE VARNISH (*J. M., Lancaster*).—See p. 280.

AMARYLLIS (*J. E. J., Liverpool*).—The cause of its leaves turning yellow is probably your giving too much water, and on the surface. Follow *exactly* the plan directed at p. 131. Put it in the window of a warm room, and do not disturb the root by breaking the pot as you propose.

CYCLAMEN SEEDLINGS (*P. J.*).—You received these lately and potted them half an inch deep, and now you say they are "dying off." These seedlings should not have been potted till they had finished their annual growth next May. They are going to rest, therefore, without being ripe, and that will delay their flowering a season longer, and you cannot possibly do anything with them now but let them dry off. When the leaves are decayed plunge the pots in soil out of doors, so that the rims of the pots are just covered, and there let them remain till the autumn, and they may begin a fresh growth earlier than usual. When the leaves appear take up the pots, and encourage their growth in a window or pit.

OLEANDERS NOT FLOWERING (*Ibid.*).—There can be little doubt that the oleanders you speak of as casting their flower-buds, being stunted for want of water. As soon as the flower-buds appear set the pots in saucers of water, and those in the tubs should have large doses of water every day; and if the water runs down fast, the most of it, probably, runs down between the tub and half of earth. To prevent this, run a seam of soft clay round the tub and on the edge of the ball, thus forming the surface into a cup shape, and this will compel the water poured into it to pass all through the ball. This is a common practice on the continent, and it is astonishing in what small tubs they keep their oleanders, oranges, and myrtles, in good health by this simple process, and a constant use of liquid manure. As the oleander is a strong feeder, it is best to have them in pots, so that they can be amply supplied by liquids through their flowering season, and they will take rich liquid manure all that time. If you were to plunge the pot six inches deep in a horse-pond while the plant is in bloom, it will do no harm, but the contrary.

NAME OF PLANT (*M. P.*).—The little blue flower which you sent us, and say has been in your garden thirty years without any increase, is a little bulb, a native of England, and called squill (*Scilla bifolia*). When the leaves die down next June, take up the bulbs, divide them, and plant them again immediately, putting three bulbs in a patch, and about three inches deep in fresh light sandy soil.

YOUNG GERANIUM SLIPS (*Young Recruit*).—It is a common case for rooted geranium slips to turn yellow in the leaves when they are potted out of a store pot like yours. They will soon recover and make fresh leaves. Cut away all those leaves that are yellow or drooping much, and keep the plants well supplied with water; when they are in active growth again nip off the top ends, and the buds below will grow into shoots, and make the plants bushy.

AGAPANTHUS (*Henry Freeman*).—Your plant is the agapanthus without a doubt. It only requires to be kept from the frost, and to have very little water from October to March, and as soon as the spring frosts are over, the open air in a warm sheltered spot is the best place for it, and to be abundantly supplied with water through the summer. A nine-inch pot is large enough for a plant with four crowns; strong rich loam suits it best, also liquid manure twice a week in the height of summer. This is the best time to divide them, which is a severe operation, and is done thus:—turn the plant out of the pot, and with a strong sharp tool cut the ball right through between two crowns or divisions; we cut ours with a spade, and always divide the ball into as many pieces as there are crowns; we then pare down the corners, and after that pull out as many of the cut roots as will separate without injuring the rest, and we pot them according to the size of the pieces. They make an enormous quantity of roots, and once they are established we only pot them once in three or four years. They make beautiful flower-buds if the soil is deep and rich, and not too wet at the bottom, and will remain out for years if they are well thatched in the autumn. We have this week dressed our large bed of them, and cut all the old leaves off, and the new ones are pushing out in the centre already. We keep a wooden cradle over the bed, and throw a few mats over it on a frosty evening. About the middle of April we shall plant some of the large blue campanula among them, and when the frost is over we shall turn out several plants of the old scarlet lobelia and some gladioli in the same bed. The effect of the whole will be unique and very gay.

CAMELLIAS (*J. S. C.*).—Your four camellias, if true to the names by which they were sold, viz.:—*Ochroleuca*, *Queen Victoria*, *Sweetie*, and *Punctata*, are nearly, but not quite, first-rate. Spring is not the best time to pot camellias; the true time is when the flower-buds are well formed. If you bought them at a sale of foreign plants they are potted in pure peat, with hardly any sand, and the balls probably as hard as cannon balls, and you will find some difficulty in getting them to start in our English compost of loam. Pot them into pots only one size larger than those they are in, and let the compost be two-thirds good peat, the rest loam and sand; this will insure them by degrees to take to the loam. These foreign plants are got up, like Peter Pindar's razors, to sell. Your stove plants are not within our province.

HYACINTH SEEDS (*Glandula*).—Hyacinth seeds saved in this country are not worth sowing. An amateur near us has some beautiful hyacinths that he bought in Holland in 1822; he raised we

know not how many seedlings from them, but after following up the plan for 18 years he never got a single one worth looking at. He flowers them from the fifth to the seventh year of their age, but he has given them up altogether.

ALPINE PRIMROSES (*Rev. E. Lemans*).—We know of no one who cultivates bulbs merely "botanical" for sale; the only means of finding out these rarities is by an advertisement. The Alpine primroses do best in pure loam and sand, what we call light loam, to be well drained, and the pots plunged in sand, in a cold pit with a west aspect; pure soil and air, uniform moisture, and never to be drenched by rains, are the chief requisites for these plants. Your compost of "equal parts of heath-mould, leaf-mould, and loam," is far too rich for them, and the roots perish from the exposure of the pots. We know little of the culture of ground orchids; an experiment is now in progress, at the garden of the Horticultural Society of London, on this subject. These are curious subjects, foreign to our publication, therefore we are obliged to avoid them.

DRIVING BEES (*J. N., Bristol*).—We never recommend transferring bees from one hive to another; you cannot remove the combs; see page 270. We do not know of any hive-makers near London. Sellers of hives are Messrs. Neighbour and Son; see their advertisement.

SLIDING PLATE TO HIVE (*A Young One*).—Mr. Payne says that for wooden hives, they being flat-sided, one sliding-plate for regulating the size of the entrance, as recommended in Taylor's "Bee-Keeper's Manual," does better than two plates; but for straw hives, being round, two plates are required. They fit within the slides so that they may be always kept there, as represented at p. 239.

SALT AS A MANURE (*Clericus*).—Never let salt touch the leaves of any plant but those of weeds; it almost always kills them. Those of the asparagus and sea-kale are the only exceptions we know.

PEA SOWING (*W. H. Venn, jun.*).—We sow peas usually in single rows, putting a double row of the seed in each, and an inch apart every way, thus, This year we are trying double rows, as stated at p. 271.

FUCHSIAS (*A Subscriber and Constant Reader*).—Your Fuchsias in leaf and covered with buds are too forward to be treated as directed at p. 241. The lilac being in flower on the 3rd of this month, was early even for the neighbourhood of Falmouth.

POPE GREGORY (*Clericus Rusticus*).—We quite agree with this extract from your letter:—"Not questioning his (Pope Gregory's) benevolence in desiring that the *Angli* should become *Angeli*, nor his conscientious belief in the message sent by his envoy Austin, I venture to remind you that we had British Bishops centuries before his visit, representing us in Church Councils, and that we Protestants consider the preaching of Gregory's messenger to be that 'other gospel which is not another,' described by Paul.

CANVASS FOR COVERING (*J. W. J.*).—See p. 200.

OLD GRASS PLOT (*J. W. G.*).—This you say is covered with weeds and bad grass, and you wish as quickly as possible to convert it to a bowling green. Pare off two inches in depth of the whole surface; charr this, and while it is charring get some turf sufficient to relay the whole, and then sow over it the charred matters. This is the quickest mode of getting a bowling-green, and an effectual mode of destroying the weeds. If you cannot get turf charr the surface as above, dig the plot, spread the charred matters over the top, and then sow and rake in the mixture of grass seeds detailed at p. 62.

STEEP FOR POTATOES (*Walter Sheppard*).—We have no expectation that any steeping of the sets will prevent the disease occurring. Epsom salt (sulphate of magnesia) has long been known as a good manure for potatoes.

BEST SOIL FOR POTATOES (*Beta*).—You will have seen, at p. 280, an answer to your first note on this question. You now ask for an analysis of a soil known as producing good mealy potatoes, and we give one that did so in Essex, but we do not think this of much use. Any light soil, moderately supplied with decomposing matters, and well-drained, not containing any noxious constituent, and not deficient in any of the usual earths, will grow good well-flavoured potatoes. Any slight difference in the relative amount of its earthy components is of no consequence. One hundred parts of the above soil contains, stones and gravel, principally siliceous, 27.0; vegetable fibres, 1.0; soluble matters, chiefly vegetable extract, 3.0; carbonates of lime and magnesia, 18.0; oxide of iron, 4.0; animal and vegetable matters, 1.0; alumina, 4.5; silica, 40.0; loss, 1.0.

LUCERNE (*J. M., Dublin*).—Thanks for the extracts, we will use them the first opportunity.

NAMES OF PLANTS.—*A Cottage Subscriber* writes thus:—"I constantly hear it as a matter of complaint, especially among ladies, that gardeners will continue to use 'those nasty Latin names.' What, then, must be the difficulty of the cottar, of children, and even that of 999 out of every 1000 otherwise ignorant but practical gardeners?" We quite agree with our correspondent, and we can only say that we recommend no one to buy a plant or a packet of seed on which the English as well as Botanical names are not written. It would give but little additional trouble to the seedsman, and is useful as well as fair to the purchaser. We knew a party last year who bought a packet of seed marked "IBERIA," and who was astonished as well as vexed to find that it came up "Candy-tuft," of which the first is the botanical name.

PHENOMENA OF THE SEASON (*Rev. E. J. Houman and Rev. J. Byron*).—We are much obliged by your notices of occurrences among our native flowers and animals. They shall be published next week, and we shall be glad to receive similar notices from any correspondent.

FUCHSIA MACRANTHA (*R. G. R.*).—The price of this in some nurserymen's catalogues is 1s. 6d., in others 2s. 6d.

ESTIMATE FOR BUILDING A PIT, &c., (*Anon.*).—We find we cannot give this so as to be of any service. If you will show our drawing of "Fortune's Pit" to any builder, he will tell you for how much he will convert your present pit to that form. "Hand-glass culture," until May arrives, is nothing more than sheltering plants

with hand-glasses; and without fermenting materials, hot-water, or a fire, we can no more tell you how to keep up "a gentle heat," than Gulliver's philosopher could extract sun-beams from cucumbers. We never name more varieties than are good, and it is easy for our readers to select these such as they need.

WALL SUPPORTING A BANK (Allotment).—It is true that the earth behind your wall will keep it damp, but if you use as you propose a trellis to train your fruit-trees upon, we do not think that the dampness will injure them, especially as your wall has a good (south) aspect. Residing, as you do, in Devonshire, any peach, nectarine, or apricot, will thrive against your wall.

CONCRETE TANKS (Ibid).—Small fragments and dust of your "clay-slate" and "killas" will probably answer for inaking concrete as well as gravel. Try a little first. Make it into a block, and you will see in a few days whether it sets or hardens.

WATERING CALCOLARIA SEEDLINGS (T. Thorpe).—Having made a gutter by pressing down the earth round the rim of your pots, and filling this gutter with water, is a very good mode of keeping the surface moist. But the best mode is to put each pot within another about two inches wider, filling with moss the space between the two pots, and watering the moss. See p. 213.

COMMON BLACKBERRY (R. C.).—If this is cultivated like the raspberry its fruit is much increased in size, and we know of no reason for its being neglected. Both are natives of England, and both belong to the same genus. The blackberry might be improved, probably, by cross impregnation from the raspberry. As it is there are four varieties of the blackberry; the white-fruited, the thornless, the downy leaved, and the gland-bearing.

NEW VARIETY OF RHUBARB (J. Riley, Birkby, Huddersfield).—This is small but excellently flavoured; the colour it imparts to the syrup of puddings is a more brilliant crimson than any we have seen from other varieties. Mr. Riley, writing early in March, says, "It is the earliest sort my garden produces. With merely the protection of a pot, without manure or anything to force it, we have been cutting it for a month past." Rhubarb without forcing in the first week of February, and in Yorkshire too, is certainly valuable. We should like to have a plant of it.

POULTRY-FEEDING (Eleanor).—A bushel of barley ought to supply your nine fowls for a month.

INFLUENCE OF THE MOON (O. B.).—On this curious subject we shall make some observations before long. Your mode of removing the Green Fly from pots in rooms shall be inserted.

HOUSE SEWAGE (Rev. T. G. Simcox).—Do not apply this to your potatoes planted upon a newly broke-up pasture. All authorities agree that they are injured by stimulating manures; or, in other words, that these exasperate the disease by which of late years they have been ravaged. Your stable and pig sty drainage can be applied with the most advantage between the rows of your spinach, celery, asparagus, and rhubarb. One gallon to five or six of water will be strong enough.

CALENDAR FOR APRIL.

GREENHOUSE.

Admit AIR daily on fine days, but guard against cold draughts.—**CAMELLIAS**, water freely, and sow seeds of.—**EARTH IN POTS**, stir the surface frequently, and add fresh, if not done in March.—**GREEN FLY**, or **APHIS**, usually attack young growths, and must be kept down by tobacco smoke.—**HARDEST PLANTS**, keep in the coldest parts of the house, near the ventilators.—**HEAD-DOWN OR PRUNE** straggling shoots and irregular growths.—**HEAT**, increase the natural heat, by closing the house early in the afternoon.—**MARCH WOOLY PLANTS** for increase.—**LEAVES** and wood decayed, remove as they appear, and clean with sponge and syringe.—**LIQUID MANURE** apply to plants in free growth, but not to sickly plants.—**POT** plants as they begin growth, and water them immediately.—**PROPAGATE** by seed-roots, cuttings, and inarching, as the species permit.—**PRUNE** or **PINCH** off free growths, to form bushy plants.—**SUCCULENT PLANTS**, water now more freely, and increase by cuttings and leaves.—**WATER** regularly as the plants get dry. D. BEATON.

FLOWER GARDEN.

ANNUALS (Tender), prick out those sown in February and March in a hotbed; water gently but often; sow in hotbed; (Hardy) may be sown in borders, &c., to remain; thin those advancing. **AURICULAS** in bloom, shelter. (See **HYACINTHS**.) Supply with water often; those for seed, plunge pots in a sheltered border, where they can have sun until 11 o'clock; plant offsets; propagate by slips; seedlings shade during mid-day. **AURICULAS** done flowering, place out of doors, and separate offsets. Box edgings may be made and old taken up, slipped, and replanted; clip box edgings. **BIENNIALS**, finish sowing, b.; plant out those sown last spring. **BOLUS**, in water glasses, done flowering, plant in ground after cutting down stalks, but not leaves; autumn flowering, take up and store. **CARNATIONS**, in pots, give liquid manure every third time, very weak, and water often; stir the earth; sow e.; plant into borders, b. **CLIMBING** plants, train and regulate. **LAYER RHODOCHORONS** and hardy **AZALEAS**. **DAHLIAS**, plant to remain, h.; or in pots to forward in a frame until May. Dress the borders, &c., indefinitely. **EVERGREENS**, plant, b. The Evergreen Oak rarely succeeds at any other time. **FRAMES**, raise, by supporters at the bottom, as the plants within grow tall. **GRASS**, mow once a week, and roll oftener; dress with earth if poor; and sow seeds, especially white **CLOVER**. **GRAVEL**, turn and lay afresh in dry weather; roll in rainy weather often. **HOENING** and **MAKING** are still the standard operations. **HYACINTHS**, shelter from sun by an awning or matting over the beds, from nine to four; give the same shelter in bad weather day and night; those done flowering

take up as soon as the leaves decay; separate offsets and store. **INSECTS**, destroy with tobacco smoke or dusting of Scotch snuff. **MIGNONETTE**, sow in any warm border. **MULCH**, put round trees newly planted. **PINKS**, sow. **POLYANTHUSES**, sow; plant out and propagate by offsets, b.; last year's seedlings now in bloom, mark best for propagating. **POTTED PLANTS**, give fresh earth to, if not done last month; shift into larger; water freely. **PERENNIALS**, those sown last spring may still be planted, and propagated by offsets; finish sowing. **STICKS** are required to blooming plants. **TULIPS**, shelter from sun and wet; take off pods to strengthen bulbs. **WATERING** is now required more frequently, yet moderately; give it early in the morning. **RANUNCULUSES**, water freely, and press the earth very hard between the rows. **ROSES**, thin buds where very abundant; watch for grubs in the buds and crush them. Tobacco water use to destroy the aphides by dipping the shoots in it where the insects are. T. APPLEY.

ORCHARD.

APPLES may be planted although full late.—**BLOSSOMS** of well fruit, protect.—**BUDDED (Trees)**, last summer, remove insects from buds and shoots from stock below, also head back the stocks.—**CHERRIES** may be planted.—**DISBUD** wall trees and trained espaliers of superfluous buds, in a progressive way.—**FORCING** fruits, in hot-house, attend to, on similar principles.—**GRAFTING** (late kinds of Apples, Pears, and Plums) may be done still, b.—**GRAFTS**, lately inserted, see that the clay is firm, and rub off shoots below the scion. **HEAD-DOWN** Wall and Espalier trees, finish, b., if not done last month. **INSECTS**, search for and destroy. **LIME** (early in the morning), dust over the leaves of the trees affected by Caterpillars. **MULCH** over the roots of newly-planted trees to keep in moisture. **PEACHES** may be planted, but they rarely succeed. **PEARS** may be planted. **PLANTING** in general may yet be tried to prevent a season being lost, much care must be taken. **PLUMS** may be planted. **PROPAGATING** by layers, cuttings, suckers, and seed, finish, b. **PRUNING**, finish, b.; stop young shoots if too luxuriant. **STAKE** trees newly-planted. **STRAWBERRIES**, remove runners from, as they appear, and top dress, water daily in dry weather those in bloom. **VINES**, propagate by layers and cuttings, b.; summer dress; in Vineyard stake and hoe frequently; old borders manure. **WALL-FRUIT**, thin generally. **WASP**, destroy; every one now killed prevents a nest. Water abundantly fresh planted trees.

FIG-TREES may have their winter covering partially removed of the beginning of this month, and entirely by the commencement of May; and they may then be pruned and trained. **NEWLY-GRAFTED TREES** are benefited by being sprinkled by the water engine during dry weather.

Watch for the **CATERPILLAR** on the gooseberry bushes. Observe the directions about **PEACHES** in "The Cottage Gardener," and use the sulphur mixture; also the tobacco water when the trees are fairly done blossoming. Watch the development of the **AMERICAN BRIGHT** and use the brush. Apply soft-soap water to the stems of **PEAR TREES** infested with the **SCALE**. Top dress **RASPBERRIES**, also all bush fruit, if requisite. Remove all **SUCKERS** from fibrets; also from all bush fruit, wall trees, espaliers, &c. Let all **FRUIT** borders be dressed and edged as a finish to the garden, taking care to make sound walks. R. FERINGTON.

KITCHEN GARDEN.

ALEXANDERS, sow. **ANGELICA**, sow. **ARTICHOKES**, plant, b. or dress. **ASPARAGUS**, sow; plant; force, and dress beds. **BALM**, plant. **BASIL**, sow. **BEANS**, sow, hoe. **BERTS** (three sorts), sow, b. **BORRICOLE**, sow; prick out; leave for seed. **BROCOLI**, sow main crop; prick out; leave for seed. **BORAGE**, sow. **BURNETS**, sow and plant. **CABBAGES**, sow; pick out; plant out; earthen, CAPSICUM, sow. **CARDOONS**, sow. **CARRAWAY**, sow. **CARROTS**, sow; weed. **CALLIFLOWERS**, sow in open ground, b.; prick out; plant from glasses. **CELERY**, sow; earth up; leave for seed. **CHAMOMILE**, plant. **CHIVES**, plant. **CHERVIL**, sow; leave for seed. **COLEWORTS**, plant. **CLARY**, sow. **CRESS** (American), sow. **CUCUMBERS**, sow; prick out; ridge out; attend advancing crops; thin laterals. **DILL**, sow. **DUNG**, for hotbeds, prepare. **EARTHEN-UP**, attend to. **FENNEL**, sow or plant. **FINOCHIO**, sow. **GARLIC**, plant, b. **HORSE-RADISH**, plant, b. **HOTBEDS**, make and attend. **HYSSOP**, sow; plant. **JERUSALEM ARTICHOKES**, plant, b. **KALE** (Sea), sow and plant, b.; dress beds. **KIDNEY BEANS** (dwarts), sow; (runners), sow, e. **LAVENDER**, plant. **LEeks**, sow, b. e.; leave for seed. **LETTUCES**, sow weekly; plant from frames, but they now do better without moving; prick out; tie up. **MARIGOLDS**, sow. **MARJORAMS**, sow and plant. **MELONS**, sow; prick out; ridge out; attend to advancing; thin laterals gradually; day temp. 80°, night 70°. **MUSTARD** and **CRESS**, sow; leave for seed. **MUSH ROOM BEDS**, make; attend to. **MINT**, plant. **NASTURTIUMS**, sow. **ONIONS**, sow, b. e.; weed; leave for seed; (Hamburg), sow. **PARSNIPS**, sow, h.; hand weed. **PEAS**, sow; hoe; sick. **PENNY-ROYAL**, plant. **POMPIONS**, sow, b. **POTATOES**, plant; attend forcing. **PURLANE**, sow. **RADISHES**, sow; thin. **RAPE**, sow. **RHUOARG**, plant. **ROCAMBOLE**, plant. **ROE**, plant. **SALSIFY** and **SAVOY**, sow, e. **SAVOYS**, sow, b.; prick out. **SCORZONERA** and **SKIRTINGS**, sow, e. **SHALLOTS** and **SAGE**, plant, b. **SORRELS**, sow and plant. **SPINACH**, sow; thin; leave for seed. **TANSY** and **TARRAGON**, plant. **THYME**, sow and plant. **TOMATOS**, sow. **TURNIPS**, sow, b. e.; leave for seed. **TURNIP CABBAGE**, sow. **WORMWOODS**, sow. G. W. J.

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