state than before the crop was gathered, but it must not be kept too dry.

For the first fortnight or so after gathering the last portion of the crop the trees should be syringed once a day, and the evening should be selected for the work. Afterwards, two or three times a week will suffice. If the trees should happen to be infested with green or black fly, fumigate the house two or three times, allowing one or two days to elapse between each operation. Tobacco, or tobacco-paper may be used; the latter is the cheapest when it can be obtained of good quality. In using tobacco-paper, if there is no fumigator at hand, take a flower-pot eight inches in diameter, make a hole on one side, about an inch above the bottom, then put a few red-hot cinders in it, and over these a layer of dry brown-paper. When the latter is fairly alight, and bursts into a flame, add a handful of dry tobacco-paper, and then proceed to fill with the latter damped sufficiently to insure its burning slowly. If the material is lighted properly it will not require blowing after it is placed in the house. It must, however, be watched from the outside, for if it bursts into a flame and continues to flare for a few minutes, it will soon do a considerable amount of mischief. When it burns through, the proper course is to stir up the unconsumed material, and damp it slightly; but if the house is only partly filled with smoke, a little additional material may be added.

The general management of grape-vines does not differ materially from that advised for fruit trees generally. They must have full exposure, a moist soil, and an occasional syringing overhead. Moreover, the laterals which push after this time should be allowed to grow unchecked, unless they become too crowded, and in that case they may be thinned out. It is a serious mistake to remove, at this stage, those as fast as they make their appearance, for they are promotive of a healthy root action, and materially assist in the formation of the buds. Even previous to the grapes being cut, the laterals may be allowed to extend themselves with a considerable degree of freedom; and it may be safely said that it is altogether wrong to rub every one off when an inch or so in length, and consequently should not be practised.

CULTURE OF THE ONION.

IT is not generally understood that the year of the onion begins in August, although it is everywhere known that the year of the spring bulb ends in August. The established rule for onion growing is to sow in March, and take up the crop when ripe; and the time of ripening so much depends upon the season, that the storing of onions begins in some years in the middle of July, and in others is deferred until far into September, or even October. What we have to say on this part of the subject may be new to many of our readers, but is not, in the proper sense of the term, new at all. We intend to

insist on the policy of sowing in autumn, and that is why we treat upon the subject now, and lead off with the remark that "the year of the onion begins in August."

The onion is a profitable plant, in every sense of the word, and therefore should be generously dealt with. Many of us might endure, without any excruciating pang, the loss of a crop of asparagus, delicious as it is; or of carrots or parsnips, undeniably useful; but to lose the onion crop would be a heavy blow, and it would be especially felt, for our sakes, by the sweet salads on sunny spring days, and on hot summer nights, and by the ducklings that had been fattened near the herb garden, and had known the smell of sage from their earliest days upwards. The three graces of the kitchen-garden are the potato, the cabbage, and the onion; and they are also qualified to play the parts of the three strong men, for which performance the potato should be regarded as Atlas, the cabbage as Hercules, and the onion as Milo of Crotona. But you want information; ah! really I had almost forgotten that; but, after all, it may be that you have obtained a bit already, and if not so, we suggest that you think about it, with a view to sowing onions within ten or twenty days of this first of August.

Soil for Onions.—There is much too much said in the books on this subject. Opinions are less valuable than facts, but I shall offer an opinion to this effect: that the onion obtains a very large proportion of its sustenance from the atmosphere, and support the opinion by the fact that onions may be grown for several years in succession on the same soil, with little or no help from manure. A collection of some thirty varieties have been grown in our trial-ground on the same plot for fifteen years in succession, without one failure, except in 1860, when the excessive rain made them gross and thick-necked, and we had to dry off the crop in an oven in the month of October, and they kept very badly. On this plot, spring and autumn sowing have been systematically practised, the plots devoted to spring-sown onions being occupied all winter with collards or winter greens, planted immediately after the removal of the onions, and the ground prepared for each crop by being well dug, one spit deep, and a thin sprinkling of Lawson's phospho-guano put in at the bottom of the trench as the work proceeded. We have long been convinced that the diseases to which onions are subject are more frequently caused by excessive manuring than by any inherent tendency of the plant to disease, or any extravagant *penchant* for it by the insects that occasionally decimate the crop.

There is no soil so good for the onion as that of an old, well-cultivated garden. A newly-broken pasture, on which potatoes or brassicas would do well, should not be selected for onions. The ground having been long cultivated should be thoroughly well dug, and as a rule, it is sufficient to dig one spit deep; but if the second spit is good, double digging may be useful; and whenever double digging may be safely practised, it should be resorted to, for it pays well to provide a deep-rooting plant with a deep, well-pulverized seed-bed. In a rotation system, onions should follow celery, the land being previously manured for the celery, and not manured at

all for the onions. But if a heavy crop of onions is desired, and the ground on which they are to be sown was not heavily manured for the previous crop, a sprinkling of guano or bone-dust will be required, or a good layer of rotten stable-dung must be put in between the two spits as the ground is trenched. We repeat that we take heavy crops of the finest possible bulk by digging one spit deep, and refreshing the soil with a thin sprinkling of phospho-guano, and know nothing of grub or any other impediment to success, save and except the weather; and as we trust to the autumn sowing for main crops, we generally have the crop ripened early and perfectly. All carbonaceous manures are particularly good for onions; hence, it is well to save for them the sweepings of chimneys, the finer stuff from a smother, in which, of course, there is much fine charcoal; and the finer parts of lime and plaster rubbish that may result from building operations. Any of these substances may be dug in as the ground is prepared, and it will be an additional advantage to the crop if some of them, more especially the soot, is spread over the surface *after* the seed is sown. In the books the use of soot as a top-dressing is advised; but the writers all agree in recommending that it be spread before sowing, which is a mistake, for it is more effectual if put on afterwards thick enough to make the ground quite black.

Sowing and Summer Culture.—Prepare the bed by breaking up the soil well, for the onion will not thrive amongst clods, or on a very wet or very dry staple. The beds should be in an open sunny situation, four and a half feet wide, and the seed should be sown in drills across, so as to facilitate the action of the hoe between them. We never mark off beds, in the proper sense of the word, but sow lengthwise of the piece in drills six to twelve inches asunder, and walk between the rows when the hoe is used. The drills should be drawn carefully to the line, and be fully one inch deep. Sow the seed as thinly as possible, cover with the back of the rake, and tread the rows firmly. The time for sowing is from February to May, and from the last week in July to the first week in October. We find that two sowings are sufficient for all ordinary purposes, the most important sowing being made in the early part of August, and the other in the latter days of March, or as early as possible in the month of April.

As soon as the plant is well above ground, thinning should commence, and the spring-sown onions should be thinned earlier and more severely than those sown in autumn. A little judgment is needed in this work, and it may be exercised to the advantage of those who love young onions, for by successive careful thinnings, supplies of tender, sweet, small salad onions may be obtained nearly the whole year round from two sowings only, for just as the last thinning of the autumn-sown takes place, the spring-sown will be ready for use. The final distance for a good useful crop is six inches, but on a somewhat poor soil they should be left at four inches apart, for they ripen better when they jostle each other, and to do onions well the ground towards the end of the season should literally be paved with them. Ply the hoe between whenever weeds

appear; be careful always not to break the necks of the plants, or loosen their roots. Give them frequent heavy waterings with sewage, if you can, while they are green and growing, but not a drop after they show a tendency to ripen. When the ripening season approaches, say the middle of July in a hot season, and the end of the month or later in a cold season, pass the handle of the hoe over the bed carefully, to bend the stems down on the bed, at about two inches from the ground: this helps to swell the bulb and promote perfect ripening.

EXHIBITION ONIONS are grown in two ways: the one occasioning much trouble, the other little; and the last-named always very nearly, and sometimes quite, as good as the first. The seed is sown on well-pulverized, unmanured ground, about the middle or last week of May, in rows six inches apart. The crop is only moderately thinned, and of course is kept very clean with the hoe. In October the crop, consisting of bulbs the size of walnuts, is taken up, dried, and stored. Early in March the little bulbs are planted in rows a foot asunder, and six inches apart in the rows, on ground heavily manured; and when the planting is finished, a coat of fine charrings is spread on the surface between the rows. In the process of planting, the bulbs are placed on the surface, and a handful of rich soil is put around each to hold it in position, this plan being preferable to inserting them in the soil, for the onion does not thrive when the neck is covered. The easier method is to prepare the ground by laying a good coat of fat manure at the bottom of the trench in digging the ground, and then to prepare the seed-bed in the usual way, and sow in rows nine inches apart. They are to be thinned several times, and to have a final thinning to nine inches apart in the month of April, after which they should be systematically watered with liquid manure until they begin to show an inclination to ripen, when the blade should be bent down, and not another drop of water given. This method of cultivation will pay in any garden, without reference to exhibiting or the possible profit of praises and prizes. By either of these two methods onions may be grown in English gardens equal to the best of those that are imported from Lisbon and Madrid, and sold in the grocers' shops under the general designation of "Spanish onions."

PICKLING ONIONS should be small, and perfectly ripe. Sow in April, on well-dug soil, without manure, and do not draw a single blade; let the whole crop ripen as it stands, and the starving system will insure beautiful bulbs for pickling. The *White Nocera* is the best pickling onion save one, to which we shall presently refer, but *White Spanish* or *White Globe* may be sown instead, and they will answer nearly as well, though nothing can equal in appearance the silver-skin race, of which the *Nocera* is the best variety.

HARVESTING AND STORING.—It is usual to wait until the whole crop is ripe, and then to draw the roots and lay them in the sun to finish. This is bad practice, for some roots ripen earlier than others, and if rainy weather sets in, they make fresh roots after having had a rest, and are then deteriorated beyond recovery. Amongst a bulk of onions treated in this off-hand way, many will

begin to sprout before the winter is half gone; whereas, by better management, the whole may be kept nearly the same length of time, this, of course, depending in a great measure on the keeping properties of the variety. The proper way to harvest the crop is to draw the roots as fast as they ripen, and lay them on mats or boards in the sun, and take them under cover at night and during wet weather. By this treatment every separate plant is humoured, and the trouble is no greater; at all events, the more uniform and perfect ripening secured will more than compensate for any little extra labour occasioned. As they become thoroughly well dry and shrivelled at the neck, they may be put in nets, or bags, or wicker baskets, and temporarily stored in a dry shed *in the full light*, and on wet days they may be roped and hung to the rafters to supply the kitchen or market as required.

It may happen that just as the crop is ripening, and should be lifted, dull rainy weather will set in. As to what is to be done in such case, each one must judge for himself, but a general advice may be given to this effect—that, as the crop is too valuable to be lost without a struggle, it would in such a case be prudent to take it up, and cut off the blades four inches above the neck, and put the whole of the bulbs in a cooling oven, with the door open, and repeat the process three or four times, at intervals of a day or two, to compel them to ripen. If it be asked what should be the temperature of the oven, we can safely give a wide range, for it must be above 60° and it may be below 100°, but an average of 80° may be considered the proper temperature. When onions are stored in dark houses, they should be on ropes, or very thinly spread on shelves. If the household demands large onions late in the spring, a sufficient number of large bulbs of late keeping sorts should be seared at the neck and the base with a hot iron, but it must not be so hot as to scorch the place it touches.

Diseases and Insect Enemies.—We have never had on our ground any serious disaster with the onion crop, and, therefore, perhaps, cannot properly advise on the prevention or cure of diseases, or the extermination of insects that attack the onion. Some years ago we prepared some seed-beds for onions on a plot of old garden ground we had just taken, and in respect of which we were informed that it abounded with every possible grub, worm, and fly that wages war with the gardener. When the beds were ready for sowing, we gave them a heavy watering with sulphuric acid diluted with thirty times its bulk of water, and sowed the seed the next day. The result was a wonderful crop of onions, but whether the acid killed the vermin or simply enriched the ground by acting on its stony constituents we never took pains to inquire. We have sometimes seen a grub or two, or rather have noticed the blade fall over here and there as though there was something wrong, and have at once watered the crop with a solution of nitrate of soda, half-a-pound to the gallon, and that appeared to stop the plague. There is not a more certain or healthy plant grown than the onion, that is, of course, when it is grown properly.

Seed may be raised easily, but the cottagers' rule is the worst

possible. He selects soft and half-spent bulbs, that are not good enough for roasting, and if they produce seed it is of poor quality, and will not produce handsome bulbs. At the end of February the finest bulbs obtainable should be planted in poor soil, a foot apart each way, and so deep that the necks are just covered. Keep them clear of weeds, and before they come into flower provide them with rails attached to posts, to which tie them to prevent their destruction by storms. Stout tarred string will answer, but rails are better if the heads are large. Cut the heads as soon as they become brownish, and lay them on cloths in the sun to finish. Our mode of saving onion seed is to lay some large bell-glasses hollow side upwards on the stage of a sunny greenhouse, and as the heads are cut they are thrown in. In the course of a few days the seed is found clean and ripe at the bottom, having shelled itself out without giving a moment's trouble. Nine-tenths of all the small seeds grown may be saved in this simple manner. The books say, "it is of the utmost consequence to employ seed of not more than one year old, otherwise scarcely one in fifty will vegetate." This is nonsense, for we have oftentimes obtained as fine crops from seed four years old as from that of the previous year. However, we do not recommend old seed, for it is generally agreed that onion seed should not be kept any great length of time, and things commonly agreed on are usually founded on observation and experience.

The Potato Onion is a serviceable cottage garden root, but of comparatively small importance to those who cultivate a kitchen-garden in a systematic manner. It is the rule in the West of England to plant the bulbs on the shortest day, and take them up on the longest. They may, however, be planted as late as March, but as they keep badly, the earlier they are in the ground the better. They require the ground to be well dug and in good heart. The rows should be one foot asunder, and the bulbs six inches apart in the row, and the best way to plant is to lay down the line and insert the bulbs with the aid of a dibber, every bulb being planted deep enough to have a firm grip in the soil without being quite covered. The hoe should be plied frequently between the rows, but in such a manner as not to inflict any injury on the roots, and a mere skin of earth may be drawn to the base of the green blade once or twice during the summer.

The Tree Onion produces a double crop, one consisting of small bulbs at the top of the tall stem, the other of large bulbs similar to those of the potato onion, at the root. Both root and top bulbs may be planted for a crop, but the root bulbs are the best. Treat in precisely the same way as the potato onion, but do not plant before the end of February, for if a severe frost occurs the roots may be destroyed. As soon as the stems rise, provide laths or tarred rope, or some other cheap and rough support for them, for if they lay on the ground slugs and snails will eat through the stem, and the development of the top bulbs will be arrested. When the stems begin to turn yellow, cut them close over the ground, and lay them with their crowns untouched on boards or cloths in the sun to dry, and after a few days tie them in bundles, and suspend them in a dry loft or

storeroom; or rub off the little bulbs and store in nets or chip boxes. The root bulbs are excellent for stews and other purposes for which onions are employed in the kitchen, and the top bulbs make a better pickle than any other kind of onion, their flavour being peculiarly sweet and mild. The tree onion is but little known, yet it is at once good and profitable, provided it obtains the few small attentions it requires at the proper time. If the crowns are allowed to lie on the ground, as they will do if unsupported, there is a likelihood of a considerable proportion of the crop being lost through the assaults of vermin; snails, slugs, and woodlice having a peculiar liking for this particular sort, owing, no doubt, to its fine flavour.

The Selection of Varieties must be determined by the requirements of the cultivator. For a good crop of useful onions any of the race of *White Spanish*, such as *Reading*, or *Nuneham Park*, will answer every purpose, and as they keep well and look well, they are among the best of market onions. For autumn sowing, the *Tripoli* or *Strasburgh* sections are the best; and, perhaps, the very best two sorts amongst them are *Red Tripoli* and *Giant Rocca*. If particularly large onions are required, sow *Giant Madeira*, both in the open ground and in a frame in August or September, and plant out in March, in a bed of rotten stable manure six inches deep, made on a bottom of hard soil. None of the Madeira or Portugal race keep long, and therefore there should be no more grown than are likely to be required for autumn and early winter use. Amongst the late-keeping sorts, *James's* is considered the best. A true sample of this variety should be tall, and broader at the shoulder than the base, somewhat of the shape of the great oil-jars which figure in the story of "Ali Baba; or the Forty Thieves." A fine onion for main crop is *Trebons*, which may be known by its appearing as if pinched by finger and thumb near the root. The *Welsh Onion* ranks high with many who require salad onions in winter; but we could never find any use for it, always having plenty of silvery little onions from autumn sowings, which are certainly preferable to the rather puffy green blades of this variety, which does not produce bulbs. However, the Welsh onion is very hardy, and may be very useful in cold climates, where the Tripoli or Spanish onions refuse to stand the winter. Moreover, if the green blades are desired in early spring for salads, as in many houses they are, there will always be found plenty rising from old bulbs in the store; and while these are fresh and crisp, and fully exposed, they are excellent, both for soups and salads. S. H.

THE GARDEN GUIDE FOR AUGUST.

Kitchen Garden.—The various kinds of winter greens claim the first attention, and it is necessary to insure at once a good supply, and a variety. By this time Scotch kale, Brussels sprouts, broccolis, savoys, etc., ought to be strong, and where they have been planted between rows of peas, to stand the winter, should now be