

worth growing, and that is the old Purple Sprouting. However, the new White Sprouting is worth having where there is plenty of room, and a variety of spring vegetables is required. It is altogether too unproductive for a small garden.

SCOTCH KALE must be sown early and planted out early, and it cannot be too liberally cultivated from first to last. But if the ground is poor and the practice not quite first-rate, this is the best of all the winter greens, for it will make a fair return when badly treated. As to sorts, the old Tall Green Curled is the best, and we cannot advise the sowing of any other.

We plant Sprouting Broccoli and Scotch Kale in rows four feet apart, alternately with potatoes, and the plants touch one another long before winter, and present a most noble appearance. S. H.

SEASONABLE NOTES ON BEDDING PLANTS.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill.



THE amateur who would have his flower-garden embellished in the most rich and tasteful manner during next summer must now be on the alert, and make preparations for propagating bedding plants of which the stock is insufficient, and for potting off geraniums and other things which were propagated in sufficient quantities last autumn. These matters are very frequently left until it is too late in the season to afford the plants an opportunity of becoming strong and properly hardened off, or until the pressure of other work prevents its being done with that care necessary to insure success. This being the case, it has occurred to me that a few hints will be of considerable service to many readers of the *FLORAL WORLD*, who may be anxious to do their best in raising a good stock of bedding plants.

Zonal pelargoniums, which have now become of such great importance in flower-garden arrangements, are best propagated in the autumn, as spring-struck plants do not flower so early when planted in their summer quarters. Yet if the stock of any of the varieties is short of the requirements, and the autumn struck plants have made sufficient progress to yield a supply of strong cuttings, a stock of healthy plants may be secured, provided there is no unnecessary delay. The most desirable way of propagating geraniums at this season of the year is to take off the tops and insert them round the sides of five-inch pots filled with light sandy soil; they strike more freely with the aid of a dry bottom-heat, and it is a most excellent plan to stand the pots on slates placed upon the flues or hot-water pipes. They may, with care, be struck on a hotbed, but with the moisture necessary for such things as verbenas or lobelias, they soon damp off. Whether the cutting pots are placed on hot-water pipes or not, water must be applied sparingly until they are furnished with

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roots and commence to grow. At this stage harden them off, and in a short time pot them singly in small pots.

Autumn-struck plants, which have been wintered several in a pot, must also be potted off separately as soon as it can be conveniently done. Three-inch pots and a moderately good compost should be employed, and it may be said with safety that it is a mistake to use the refuse from the potting bench for bedding plants of any kind. They have to remain in small pots for several months, and it is impossible to keep them in a healthy state unless they are potted in something capable of affording them nourishment. The houses and pits in which they are placed must be ventilated when it can be done with safety, and in very fine weather the lights may be drawn off the pits altogether for a short time in the middle of the day. Air-giving must be regulated by the weather, and it is probable that we may have some severe frosts during the month, so that no specific rules can be laid down. The chief aim of the cultivator should be to promote a sturdy growth, and to take every precaution to prevent the plants being drawn up weakly.

Soft-wooded plants, comprising lobelias, petunias, verbenas, heliotropiums, mesembryanthemums, tropæolums, violas, and alyssums may now be propagated in quantity, and spring-struck plants are preferable to those raised in the autumn. Ageratums may also be propagated, but the stock raised now will not come into flower so early as the autumn-struck plants. All the above-mentioned subjects require exactly the same management, and one set of instructions will apply to all of them. In the first place it will be necessary to place the plants from which it is intended to obtain the supply of cuttings in a temperature rather higher than that of the greenhouse, to start them into a vigorous growth. It matters not whether they are old stock plants in single pots or small plants in cutting pots, for all are equally suitable for the purpose indicated. When they have made from half-an-inch to one inch of new growth the tops can be taken off for cuttings. But before doing this, prepare a sufficient number of five-inch pots, by placing a two-inch layer of crocks in the bottom, and then, after they have been covered with some rough material, fill in to within half-an-inch of the rim of the pot with finely sifted soil, containing a liberal proportion of sand. This must be pressed firm, and on the surface place sufficient moist silver sand (a half-inch layer), and make that also very firm. The sand will then require sprinkling with tepid water, and the pots will be ready for the reception of the cuttings. The best cuttings are the tops of the young shoots taken off below the second joint; the lower pair of leaves must then be removed nearly close to the stem, and they may be inserted. This should be done with a neat pointed stick, and care taken to insure the cuttings being inserted firm, for unless this is done, a very considerable proportion will fail to strike.

The cutting pots as they are filled must be placed in a structure where they can be kept rather close, and also where they will receive the assistance of a bottom-heat of about 80°. Nothing can possibly surpass a hotbed consisting of equal parts stable manure and fresh leaves, upon which a frame has been placed. Of course

the fermenting materials must be thoroughly sweetened by being turned over several times after they are put together, before the bed is made up. The surface of the bed must be covered with finely-sifted clean coal-ashes to a depth of six or nine inches, to keep down the steam, and also to partly plunge the pots in. Where a pit is available for this work, a bed of either leaves or tan may be made up, filling the pit to within about a foot of the glass with the fermenting materials, and in the case of the leaves tread them firm to prevent them sinking after the pots are placed in the pit. Where it is not practicable to have a hotbed, as here suggested, one of the propagating frames manufactured by Messrs. Barr and Sugden will be found of the greatest value. They are heated with a lamp, and are so simple that there is no difficulty whatever in managing them.

The general management of the cuttings consists in keeping the cuttings moderately supplied with moisture by sprinkling them with tepid water about once a day, and air-giving. Just sufficient air must be admitted to allow the steam from the fermenting materials and the superfluous moisture to escape readily, for if this is not done, many of the cuttings will damp off. If, on the other hand, the frame is ventilated too freely, the foliage will flag, and the cuttings will suffer severely in consequence. When the cuttings are kept in the cucumber house, where, it may be said, they do exceedingly well, they should be protected with hand or bell glasses. It is also important to shade the cuttings in bright weather. As the cuttings become nicely rooted, gradually expose them to the air of the house, or when they are on a hotbed remove them to an intermediate house, or a warm corner of the greenhouse, and, in the case of the last-mentioned structure, keep the ventilators rather close for a few days. When nicely hardened off, pot separately, and use small sixties and a moderately rich compost. In about a fortnight afterwards they will be sufficiently established to admit of their being placed in a spot where they can be protected from frost; or they can be kept in a cool end of the greenhouse, as may be most convenient.

Bedding Lobelias may now be raised from seed to any extent. Plants from cuttings are undoubtedly the most uniform in growth and colour, but by care in selecting the seed, they will be uniform enough for all ordinary bedding. To secure a stock of seedlings with the least trouble, sow rather thinly in shallow pans, and place in a genial temperature, preference being given to the propagating bed with the cuttings. The seed will soon germinate, and when of a nice size to handle prick them off into other pans or boxes, at a distance of about an inch apart. Here they will become well furnished with roots and side-shoots, and when they are large enough to just touch each other, prepare a sufficient number of boxes, by filling them with a compost prepared as for the other bedding plants, or make up a bed of the same compost in a cold frame. In either case, plant them three inches apart each way, and if they are stopped once or twice a fine stock of plants will be the result when the time arrives for planting them in their summer quarters.

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The fact that these useful bedders may be raised most readily from seed cannot be known too widely amongst amateur gardeners.

Bedding Calceolarias which have been wintered in boxes and pans should be planted out on a bed of soil, covered with a portable frame. When this is done, the frame can be removed after the second week in March, and used for more tender subjects, as the protection of a mat will be all that will be required by the calceolarias after that period. The soil should be rich, and the plants put out at a distance of about four inches apart. After they have become somewhat established, nip off the points of the leading shoots, to encourage the development of side-shoots, and thus promote the production of bushy plants.

HOW TO CROP THE KITCHEN GARDEN.

BY A KENTISH GARDENER.



TO obtain the greatest amount of profit from the kitchen garden a proper system of cropping must be resorted to—a system by which a change of crop will, as far as is practicable, be made every year, and the space provided for the respective crops when the time arrives for sowing or planting them. That is to say, the quarter that was occupied with one class of vegetables last year should be planted with a totally distinct class this year, and the planting so arranged that as the time arrives for planting one crop a vacant plot shall be ready for it. If this is not done, the cultivator will at one period be unable to provide accommodation for all the crops he is anxious to grow, and at the other the garden will be half empty. I am perfectly aware that it is not possible to carry out a perfect system of rotation in small gardens, for the space will not admit of its being done; but much more might be done than is the case at present in that direction. Having had a very lengthy experience in cropping the kitchen garden, I have ventured to offer a few hints on the subject, which I trust may prove useful to the amateur, for whose information they are penned.

In the first place, allow me to observe that in commencing operations in the spring—for that is when the real work of the kitchen gardener begins—the mind must be carried somewhat in advance of the work, for we have not only to look at the effect of present arrangements, but we must endeavour to foresee how it will run in with the after-crops, and for facilitating the changing of the crops another year. Those who have neither mind nor eye to do so will soon get into a confusion, and render a systematic progress impossible for that year. With only a moderate amount of forethought, the cultivator can see one whole season before him; and with only a little preparation, can select the sites for his crops another year. He should avoid distributing his crops in a haphazard manner, such as sowing his onions in small patches in various parts of the garden,