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Notes on Gardening . . .  
in Malta . . . . .

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Compiled by E. M. P.

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## PREFACE.

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The following notes on gardening in Malta have been compiled from articles written from time to time by DR. J. BORG, M.D., M.A. and published in the *Daily Malta Chronicle* with additional notes on the cultivation of some favourite plants by amateurs who have been successful in their culture, and who have been good enough to give me their experience.

They are offered to amateur gardeners in the island to whom I trust they may be of use in helping their local knowledge.

E. N. PRICE.

Villa Frere,

Pietà.

1910.



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## GENERAL REMARKS.

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The question is often asked by visitors and temporary residents in these islands who have small gardens or a plot of ground which they wish to turn into a garden, what are the best things to plant, when to sow seeds, plant bulbs, or how to prepare the ground. I therefore hope the following hints may be of use to intending gardeners. In the first place, should the ground be either barren rock, or very rocky and hitherto uncultivated, the rock should be excavated and broken up to a depth of 3 or 4 feet from the surface, and more or less levelled or terraced, there is no harm in letting it incline a little so that all superabundant water may run off, when this is done those parts which are intended for flower beds or for vegetables should have a layer of broken rock or rubble about 18" in depth from the bottom, on this any earth procurable should be spread and allowed to work its way down to fill up the crevices between the rubble,—the drier the earth the better for this operation—on top of this should be thrown the best red earth and manure well mixed with the soil and brought up to the level required, the larger pieces of rock and rubbish not otherwise required could be used for making the paths, the upper surface of which should be covered with the smallest stones and well beaten down. Should it be required to plant trees which are likely to grow to any considerable size, it is necessary, if the ground is very rocky, to excavate a large and deep hole, 6 or 8 feet deep and about 4 feet wide and fill it with earth some time before the tree is to be planted, so as to give time for the soil to settle down. The best time to prepare the ground is in the summer before the rains come.

In the event of the ground having been already cultivated as a garden, the best thing to do is to clean it of weeds as much as possible, dig the ground, add manure and at the proper time plant seeds or bulbs as required. As to what is best to be grown in the amateurs' garden in Malta it may safely be said that with ordinary care al-

most anything which we see growing in the gardens in England or under glass, will thrive well out here in the open, so long as it is protected from the high winds and very strong sun, with the exception perhaps of azaleas, rhododendrons, camellias, and gardenias which require a special soil and extra care.

The enemies to gardening in this country are the high winds and drought; but if these two difficulties are got over almost any plant known to the ordinary gardener can be grown with success including some tropical and semi tropical plants and shrubs. A good hedge, if a stone wall is considered ugly or inconvenient, which affords shelter from the winds can be readily formed by planting the quickly growing ever-green shrub *myoporum scrulatum*, and for the cultivation and protection of palms and plants for decorative purposes it is absolutely necessary to have a sheltered place either in a house or under a trellis or a lean-to from some convenient wall.

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The following notes on Gardeners' work, month by month, which are written by DR. J. BORG, M.D., M.A., Curator of Public Gardens, and published in the *Daily Malta Chronicle* are the best guide for gardeners in these islands, and I am happy to say that I have his permission, as well as that of the courteous Editor of the *Chronicle* to publish them.

## JANUARY.

### The Flower Garden.

Keep the ground clear of weeds, but do not work it if too wet. All spring flowering annuals, such as Calendula, Centaurea, Gaillardia, Coreopsis, Iberis, Malcolmia, Delphiniums, Malope, Nigella, Eschschotzia, Lobelia, Annual Chrysanthemums, Chinese pink, Godetia etc., may be planted out in this month. Stocks, Hollihocks, Aquilegia, Antirrhinum and other biennials or herbaceous perennials should be shifted to their final destination, otherwise we cannot expect them to flower in the first year. Perennial ornamental grasses, Aspidistra (Parlour Palm), Ruscus, may be multiplied by dividing the root-stock. Annual grasses should be planted out without delay.

Plant cuttings of Roses, Veronica, Carnations, Geraniums, Bignonia, Jasmine, Salvia Viburnum, Hydrangea, Virginian Creeper, Verbena, Ivy, Myrtle and Box.

Roses should be grafted during this month and the next. It is advisable to graft them on stocks of Crimson rose (*R. bengalensis*) or Pink rose (*R. semperflorens*), which are the two hardiest, longest lived species, and most resistant to brackish water. Ornamental trees whether evergree nor deciduous should be pruned now. Divide the roots of Chrysanthemums, placing 3 or 4 in 6 inch pots, with well rotten manure. Camellias are beginning to bloom, and may be shifted from one pot to another without injury:—chestnut leaf-mould, carob-leaf mould, or peat is necessary for them.

In the greenhouse divide rootstock of ferns ; shift ferns, greenhouse palms, and shrubs, Dracaenas, Crotons etc., keep the greenhouse free from mouldiness, avoid watering except when strictly necessary.

Dormant bulbs and tubers, (Caladium, Begonia and the like) should be kept dry without moving them from their pots. Admit air and light on sunny days, but keep a vigilant eye on the thermometer.

### The Kitchen Garden.

There is very little to do besides taking up grown vegetables. Spring potatoes should be sown without delay. Earth up Celery, Cardoons, Fennel ; Strawberries and late Kohlrabi may be planted. Sow lettuce, late peas and beans, and radish.

### The Orchard.

January and February are the two months especially devoted to nursery work. Plant cuttings of quince, cherry apple, hawthorn and plums. Divide and plant suckers of wild plum, wild apple service-tree, cherry, and wild pear, to be grafted next winter.

Sow walnuts, sweet, and bitter almonds. Graft pearson quince stock, wild pear and hawthorn ; peaches and nectarines on bitter almonds or on seedling plants of the same species ; apricots and plums on the wild plum, sweet almonds on bitter almonds, apples on hawthorn or on suckers of wild apple.

Young deciduous fruit-trees may be transplanted. Sow, plant cuttings of, and transplant olive trees: suckers taken along with a portion of wood from the base of the trunk are preferable. They should be planted in deeply-worked and well-manured ground.

It is time to prune, graft, and plant cuttings of vines choosing vigorous shoots of a year's age. Young vines may be transplanted.

In dry weather the orange grove should be weeded and dug, and an irrigation will be found useful.

## FEBRUARY.

### Flower Garden.

Most of the work left incomplete last month may be continued in this. Thus, all perennial ornamental grasses such as Pampas-grass, Andropogon, Miscanthus, Eulalia, Panicum etc. may be propagated by dividing the root-stock. Aspidistra, Crinum, Tradescantia, Agapanthus, Asters, and perennial Sedums, and sucker-producing perennials generally may be propagated in the same way. Annual spring flowers are growing luxuriantly and are greatly improved if watered once or twice with liquid manure. Calceolarias should be repotted into well-drained 4 inch pots in leaf-mould, and kept under glass in the shade until they bloom. Early Cinerarias require to be repotted in 6 or 7 inch pots, and the soil moistened with liquid manure twice or thrice before blooming. Zonal Pelargoniums should be well manured and placed in an open but not too sunny a place. Regal Pelargoniums must have a good dressing of manure and be placed in the most sunny corner of the garden. Roses may be transplanted and shifted, the branches cut down to a good bud, the roots trimmed, and the plants repotted into 9 inch pots, with fresh earth and old manure well mixed with a spoonful of superphosphates. Shift Camellias, Gardenias, Azaleas, and Rhododendrons and keep them in a cool shady place.

Sow seeds of Dahlias in pans covered with a pane of glass. Snails and slugs are busily destroying the work of the gardener and should be picked early at sunrise and thrown into hot water or petroleum.

### Greenhouse.

Plant suckers and cuttings of *Dracæna*, *Sanchezia*, *Fittonia*, *Cestrasdenia*, *Pavetta*, *Pavonia*, *Pilea*, *Peperomia*, *Maranta*, *Sansevieria*, *Tillandia* *Bilbergia*, *Greenhouse*—*Musa*, *Philodendron*, *Anthurium* etc., in sifted mould mixed with silver-sand under glass covers. The more

delicate greenhouse-creepers and shrubs may be propagated by layering or planting cuttings in sifted mould with silver-sand under glass. Towards the end of February sow Begonias, Impatiens and other greenhouse-plants and shrubs. The seed should be scattered upon a layer of leaf-mould in a shallow pan covered with a pane of glass then lightly pressed down and kept moderately moist. Gloxinias, Gesneria, and Tydaea may be sown in the same manner. Keep the greenhouse dry to avoid mouldiness, and give water sparingly. Give air to the greenhouse at midday on calm sunny days.

### Kitchen-Garden.

Sow Radish, Lettuce, Spinach, Cress, Celery and Carrots for early summer use. Blanch celery, Endive, Leeks and Cardoons. Plant out shallots. Keep strawberry-beds clean from weeds and runners. Dig in some manure among the rows which will assist greatly in setting the fruit. Some straw distributed between the rows will keep the berries clean from mud. Sow vegetable-marrow in a sheltered place.

Cucumbers may be sown in beds to be transplanted in March, or may be sown directly in place towards the end of February.

### Orchard.

Nursery-work, plantation-work and general culture as indicated for last month, especially as regards pruning deciduous fruit trees, grafting and transplanting of same, should be completed before the end of this month. Usually, very little attention is given to the pruning of fig-trees. Fig-trees left unpruned cannot produce fine fruit, and it requires more than the ordinary skill of pruners to prune fig-trees properly. The inner shoots and all small twigs which generally surround the leading shoots of the tree, produce little or no fruit, and help only to exhaust the tree and to prevent the fruit on the leading shoots from having its due share of the sun's rays, besides favouring the development of parasites, and should therefore be re-

moved. In order not to allow the leading shoots to acquire excessive length, which will expose the fruit to injury from winds besides other disadvantages, a number of leading shoots should be shortened in pruning so that each one may break up into two or three shoots which become leading shoots in their turn, and so on. Pruning of deciduous fruit trees should be done at least every two years; vines of course require pruning yearly.

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## MARCH.

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### Flower Garden.

The spring annuals are blooming and on no account should be left in want of water. If sprayed in the morning with a fine rose the blooms will be finer and will last longer. Roses are forming the flower-shoots of spring and should be dusted with sulphur or sprayed with sulphide of Potash to prevent the attacks of mildew-fungus. Plant cuttings of Colene, Acalypha, Ficus, Achyrantes, and Fuchsia. Calceolarias should have the last potting in fine mould, and may be carefully taken out of the greenhouse and placed in the shade. Seedlings of palms may be potted singly in small pots.

Plant bulbs of tuberose, Vallotta and Pancratium. Phormium, Funkia, Dianella, Luzuta, Scirpus and Cyperus may be propagated by dividing root-stock. Tuberous Begonias may be potted in mould with a little old manure and sheltered in the greenhouse until they show heads. Late in this month we may plant out tubers of Dahlias.

Chrysanthemums should have the second potting, and if desirable, planted in the open ground.

Sow palm seeds and conifers; palm-seed especially if not fresh, should be soaked in water for a day or two before sowing. Repot Cactus and plant cuttings of the same. Pots of Cactus should be crocked preferably with broken bones.

Towards the end of this month sow the summer annuals, viz: Amaranthus, Balsams, China Asters, Alonsoa, Cosmea, Clarkia Bidens, Celosia cristata and plumosa, Helianthus Helichrysum, Gomphrena, Nicotiana, Thumbergia Portulaca, Zinnia, also Spomaca, Convolvulus, Quamoclit, Lantana, Capsicums, Smail plant, Maurandia, Antigonon and most creepers. In sowing summer annuals, raised beds should be used to prevent any excess of moisture which is dangerous to the young seedlings; and some seed should be reserved to be sown one month later for late flowers.

### Greenhouse.

Propagation work by suckers or cuttings commenced last month may be continued in this. Sow Coleus, Begonias, Shrubby Balsams, greenhouse palms etc. Plant tubers of Achyemenes Gloxinia, Tydaea, Caladium, Methonica Dioscorea, Amorphophallus, Eucharis etc. Divide root-stock of Asparagus, Anthurium, Bromeliads and Marantha. Repot ornamental leaved Begonia, Croton, Coleus, Cyanophyllum, Peperomia, Fittonia, Rhexia, Strobilanthes, Tabernaemontana, and most greenhouse plants. Paint and repair the greenhouse, if necessary, and white-wash the glass on the outer-side, or make use of curtains to keep off the sun which would scorch the tender plants. Avoid damp and remove all decayed leaves. Much of the success of the season depends upon having greenhouse-vegetation well started in this month.

### Kitchen Garden.

Sow the same vegetables as indicated for the preceding month, viz: Vegetable-marrow, Quash, Egg-plant, Mad-apples, Capsicum, Tomato, Spring Onions, Summer-lettuce, Orach, Cucumbers, Gourds, Melons and Water-melons. Blanch Cardoons, Celery, Leek and Endive. Transplant early Cucumbers, Tomato, and Egg-plant. Sow French Beans, and Late-peas.

## Orchard.

Dig the orange grove; take off vegetables from among stone-fruited trees. Towards the end of this month, paint the trunk of pears, quinces, apples, cherries and hawthorn from 3 inches under ground to the branches of the thickness of a thumb with arsenical mixture, one part of Vienna green to 25 parts of ashes and the same quantity of lime, to prevent the attacks of tree-borers. No stone-fruited trees should be transplanted after the buds begin to move.

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## APRIL.

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### Flower-Garden.

The summer annuals, if not already sown as indicated for last month, should be sown now without delay, in order that the flower garden may continue in its robe of glory throughout summer and autumn after the gorgeous display of spring. The spring annuals are now in full bloom, and the flower bed should be kept moderately moist by means of frequent waterings until the blooming season is over. Sheep-manure given in a liquid form provokes luxuriant vegetation and vigorous bloom. Cinerarias and Pansies if planted in an open station should be shaded from the sun. The yearly flowering bulbs and roots, such as Narcissi, Tulips, Ranunculi, are waning, and unless the seed is required for the purpose of propagation, the seed-pods should be picked and the plants watered sparingly to save the bulbs and roots, but these should not be taken up from the soil before the leaves are entirely dry. The magnificent lilies, Amaryllis, and Gladioli are showing the flower-spikes, and should be watered freely; when blooming they should be screened from the sun without obstructing light, or if reared in pots, removed to a shady place to prolong their bloom. Liquid manure, supplied when the flower-spike makes its appearance, will help to increase the size of the flowers.



Dahlia tubers should be planted before the end of this month in a soil deeply worked and manured, and exposed to the full action of the sun. In order to propagate a desirable variety, the tubers should be planted in a flower-pot, and as soon as the shoots reach the length of three inches, they should be pinched off just a little above the tuber and planted singly in small pots with a good mixture of earth, mould and manure and left to strike under glass, keeping the soil moderately moist. Later on Dahlias may be propagated by cuttings taken from the plant itself. Plant out seedlings of Dahlias in a soil prepared as for the tubers.

Palms and conifers may be transplanted from the open ground; in transplanting palms care should be taken to replant them a little deeper than they were originally, and large palms, having already a trunk of some feet in circumference should be planted at least a foot deeper in order to allow space for new roots to form.

### Greenhouse.

All propagation work by suckers, layers, cuttings seeds etc., may be continued in this month. The same greenhouse palms, tuberous-rooted plants and shrubby or ornamental-leaved plants mentioned last month may be sown in this. Ornamental leaved Begonias may be propagated from leaves under glass covers. Caladiums beginning to show leaves should be placed in the hottest part of the greenhouse but well shaded from the sun.

Water may be supplied more freely, and some old well-rotten manure may be given to such greenhouse-plants as require it, and the soil stirred and mixed with manure as well as possible without injuring the young rootlets. Greenhouse-creepers such as the tender Passifloras, Vanilla, Aristolochia Siphon, Dioscorea, Cissus, etc. may be layered.

### Kitchen-Garden.

The vegetables sown last month require careful tending until they are sufficiently strong, to protect them

from the attacks of snails, grubs and a host of insects. Young plants of vegetable-marrows, mad-apple, tomato, capsicum, lettuce, and summer cauliflowers, cabbage and kohl-rabi may be planted out, runner-beans may be sown for a late crop. It is important to allow by turn a part of the kitchen garden to remain fallow during summer, that is by growing something, which like melons, requires no water; as the long summer drought will clear the soil of many insect-parasites and fungi.

### Orchard.

Before the end of this month dig the orange grove, if not dug already, and remove all vegetables etc. which may have been planted during winter for lack of sufficient space in the kitchen-garden. Dust with sulphur the table-grapes to prevent the attacks of Oidium. The Sulphur should be as fine as possible and it acts better if it contains from 3 to 5 % of sulphate of copper.

Towards the end of this month young orange-trees may be transplanted safely. If the weather is dry, cuttings of figs and stone-fruited trees and newly transplanted stone-fruited trees should be watered to give the young buds a good start. Vines layered now will root in less than a month, and this is the best way to procure good plants of table-grapes to be planted next winter, provided the layers are made in the open ground, so that they give no further trouble beyond watering them twice or thrice to induce them to strike.

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## MAY.

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### Flower Garden.

In this month the gardener enjoys the result of his toil during the year. The flower garden is in full bloom. But before the end of this month, most spring annuals will begin to fade, and their place must be filled up by the summer annuals, which by that time will be sufficiently strong to handle from the seed-bed into the flower-bed.

The gardener should mark out those varieties which for beauty of shade, size of flower or other quality are desirable. The choice of seed should be carefully attended to by the gardener. Many garden varieties have a tendency to revert to the original type and this is particularly noticeable in new varieties. There is nothing so unsightly in a garden as a seedy flower-bed, and the gardener having settled his choice, should remove all the other spring-plants as soon as their bloom has faded. The ground should be well worked and manured, and left to be acted upon by the sun for a few days, before planting out the summer-annuals. These should be planted in the afternoon after the sun has gone off the bed, and should be well sprayed with water every morning for the first eight days. China-asters should be planted before the end of this month, but most summer annuals may be planted in June. All summer annuals require full exposure to the sun's rays; they cannot thrive properly in the shade of trees, and should not be planted too thickly.

Geraniums in pots should be placed in the shade to develop the colour of the flowers. Cineraria and Calceolaria should be treated in the same manner to prolong their bloom. Plant cuttings of double Petunias, and take-layers of Carnations, Pinks and Picotees. Carnations in pots should be removed to a half shady place, or may be plunged in the ground, pot and all, to prevent the sun from heating the pot and scorching the roots. Cactii are beginning to move, and should be manured and watered. If left to dry a week or two and then watered abundantly, they will be thrown into bloom at once.

Camellias, Rhododendrons, Azaleas, and Gardenias, are putting out new shoots, and should be removed to the coolest and most shady nook of the garden. In our hot climate these beautiful and valuable plants require much attention to grow to perfection. A so-called cool-house is indispensable for them. A cool-house may be constructed of wood-trellis work, painted green, and leaning against the northern side of a stone-wall. The cool-house

should be made in the thick shade of tall trees, or if these are wanting, the trellis-work should be covered with a thick growth of ever-green creepers; should not be more than twelve feet high along the wall, sloping down to nine or ten feet in front, and about twelve feet broad. If creepers cannot be grown, cane-blinds painted green, may be adopted to cover the trellis. The cool-house should not be exposed to currents of air, and a moist fresh atmosphere kept by sprinkling the ground or shelves with water two or three times a day. Caves or artificial grottoes well open to daylight make excellent cool-houses for ferns, but woody flowering plants require top-light as well as side-light to grow well.

The planting of seedlings or cuttings of *Dalias* should not be delayed beyond the end of the month, if meant to flower this year.

### Kitchen Garden.

There is nothing particular to do except to look after the seedlings of melons, cucumbers, tomatoes, etc. to keep them clear of weeds and dust them with sulphur to prevent infection. A third crop of potatoes may be sown now; the Early Rose is very suitable for this summer crop. Jerusalem-artichokes should be started well by a liberal supply of manure and water. The young shoots of broom-rape should be pulled up and burned to prevent the pest from spreading. Strawberries may be planted out towards the last day of May.

### Orchard.

Dig and manure the orange grove. Dig and dust with sulphur the vineyard, and trim off unnecessary growth. Irrigate the loquat trees to improve the fruit and develop new buds. The pruning of orange-trees may be commenced; newly-planted fruit trees should be watered to help the new growth. Pear-trees and stone-fruited trees if watered now, will produce finer fruit and healthier branches. Fruit trees should never be watered when in flower otherwise the fruit will not form.

## Greenhouse.

The work is much the same as in April. We may plant the same cuttings and shift the same plants already indicated. We may remove into the open air many half-hardy plants such as Coleus, Crotons and Palms. Greenhouse creepers may be layered now.

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## JUNE.

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### Flower-Garden.

All or nearly all spring annuals are exhausted, and the gardener should lose no time in replacing them by summer annuals. But Phlox, Salpiglossis, Lobelia and Calceolaria will not cease blooming before the end of June. Seedlings of summer annuals should not be allowed to remain long in the seed-beds where they become slender and feeble and perfectly worthless. It is better to sow again seed of summer annuals for late flowers than to make use of such drawn-up seedlings as cannot be made to give satisfaction even with the best treatment. Gaillardia and Scabiosa are now in full bloom and will continue to bear flowers the whole summer. As regards the situation for flower-beds of summer annuals, the gardener should adhere strictly to the rule indicated for last month. Dahlias are beginning to bloom and will strike freely from cuttings. All bulbs and roots which have flowered in spring may be taken up, left to dry for one or two days and stored in boxes or shallow pots with sand in alternate layers. They should be kept in a cool dry place, but no bulbs or roots should be lifted from the ground before all the leaves are dry.

In this month the gardener may commence summer carpet bedding or mosaiculture, if he feels inclined to this kind of work, making use of plants having leaves of various shades of green, white, yellow, red, rose and purple. Such are *Alternanthera achyrantha* A. *sessilis*, A.

*grandifolia*, *A. amoena*, *Amarantus*, *Ajuga reptans*, *Perilla nankinesi*, *Santolina*, *Achyranthes*, *Colens*, *Sedum*, etc. The plants usually employed for carpet bedding are easily propagated by cuttings. They are fast growers and require frequent irrigation. They must have a sunny situation and a soil free from roots of trees.

The first clipping may be done in a fortnight after planting, and from that time the scissors must be kept continually in hand, otherwise the finest turnings of the design will become obliterated in a few days. The above-mentioned ornamental leaved plants are the best for carpeting work, but the dwarf compact varieties of flowering annuals which are rising in favour with amateur gardeners, will be found to be very useful, as the vivid colours of the flowers afford a more striking contrast than the gaudy leaves of the others, though not so permanent. *Asters*, *Lobelias*, *Miniature Zinnias*, *Celosia*, *Verbena*, *Balsams*, etc. are suitable for this kind of work.

*Chrysanthemums* should be shifted into full-sized pots and kept free from *Aphis* and suckers which impede their growth. The best compost for them is a mixture of two parts of virgin red-earth one part vegetable mould and one part old manure well mixed. To this compost may be added two tea-spoonfuls of superphosphates for each full-sized pot.

## Greenhouse.

The usual work of attendance on greenhouse plants. Early *Tuberous Begonias* are in bloom; *Caladiums*, *Gesnerias* and *Tydaes* are blooming and require frequent irrigations. Seedlings of *Primula obconica*, *auricula*, and *chinensis*, *Streptocarpus*, *Coleus*, etc., may be pricked into small pots and gradually hardened off. *Gloxinia* and *Achimenes* will be in bloom before the end of this month.

A moist atmosphere in the greenhouse during summer fosters the growth of plants generally. Greenhouse-plants

should be watered early in the morning before the sun gets too hot; the floor, stone shelves and plants may be sprayed at the same time and also late in the afternoon.

### Kitchen Garden.

Early cucumbers, tomatoes and vegetable-marrow are in fruit; for seeds only the finest and first fruits should be preserved. Melons and water-melons are flowering, and should be dusted with sulphur to prevent the attacks of parasitical fungi. The potato-crop has been taken in and the ground should be left fallow throughout summer. The tubers should be stored in a dry room previously fumigated with sulphur, and should be well covered with canvas, to prevent the attacks of the potato-moth (*Lita Solanella*). French beans are in flower and require a liberal supply of manure and water. Plant suckers of and transplant bananas in sheltered and sunny corners. Late cauliflowers, cabbages, kohlrabi, asparagus, summer and autumn vegetables and even spring onions should be watered in dry weather. Seed-beds of lettuce, cabbages, cauliflowers, kohlrabi, cardoons etc., expected to yield their produce in autumn and winter may be prepared and sown after the 15th of this month.

### Orchard.

Prune the orange-trees and irrigate them as soon as leaves begin to roll. Irrigation should be repeated every two or three weeks according to the nature of the soil and subsoil. It is recommended to water the orange-grove sparingly the first time, and more liberally in subsequent irrigations. The fruit-fly is reappearing to destroy such oranges as are still hanging on the tree. Early apricots, peaches nectarines, plums, pears etc. should be watered regularly once in fifteen days. If pears are irrigated they will pay for the trouble by doubling the weight of the crop, and improving the quality of the fruit. But adult peaches, nectarines and plums, should not be watered, except when growing on a very dry subsoil. Those varieties of the fig-tree which require the operation should be ca-

purified from the last days of this month onwards. Newly planted fig-trees, pomegranates, olives and almonds should be watered regularly until the beginning of August. All the fruit trees above mentioned may be propagated by budding on their respective stocks, as indicated for grafting in January.

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## JULY.

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### Flower Garden.

All summer annuals should be in place before the 10th and many of them are already in bloom. Incessant and careful irrigation is all they require to bring them to perfection. During summer, plants, especially plants in pots, should be watered early in the morning or late in the afternoon, and a daily spraying with water will do much to improve their condition. Palms, evergreen and flowering shrubs, and indeed nearly all perennial florist plants should be removed to the shade of tall trees to protect them from the scorching rays of the sun. The orange-groves afford an excellent shade. Stocks and wall-flowers should be sown now in the open ground. The beds should be well manured and deeply worked, the seed lightly covered with earth, and the bed strewn over with dry leaves or straw to prevent the soil from drying too much; a cane blind will serve the same purpose. Biennial flowering plants, Lunaria, Aquilegia, Hollihocks, Campanula, etc., if sown now and shifted into place early in autumn like stock and wall-flower will bloom the first summer, Carnations, after the blooming season, should not be shaded or watered too much; if watered in sunshine they are nearly sure to rot off.

Dahlias raised from seed or cuttings in this month will bear fine flowers in autumn. The Dahlia is the queen of summer flowers and is an object of pride to all gardeners. Its luxuriant growth and abundant bloom clearly indicate that it requires more than an ordinary share of nourish-

ment. It should be watered every two or three days, should have a supply of liquid manure occasionally, should be well propped and the soil about the roots kept loose as much as possible. Thinning out the buds will improve the size and shape of the flowers: but the Dahlia likes the sun and should not be shaded in any way to prolong the life of the flowers. Late in this month or early in the next, the Dahlia may be cut down to about 1 foot; new shoots will form immediately, and the Dahlia will flower in autumn as well as it did in summer.

Rose-bushes should be watered at least every two weeks and kept free from summer weed. Propagation by layers may be adopted with advantage and the rooted layers will be ready to be transplanted in October or November. It is useless to try to have fine roses during the hot season.

The large-flowering Cactus are blooming, and the night-flowering ones beyond doubt the most magnificent flowers in existence,—they are deservedly called the “queen of the night.” Malta is a classic land for the culture of Cactus, and there is no reason why amateurs should not have at least the best varieties.

### Greenhouse.

Ornamental-leaved plants are beginning to make a show of themselves, and all defective and mouldy leaves should be removed to prevent the infection from spreading. July is undoubtedly the best time to propagate those species which are usually propagated by their leaves. Achimenes, Gesnaria and Tydæ are growing luxuriantly and require frequent irrigations during this period. Many Orchids. Gloxinia, tuberous-Begonia, Achimenes are in bloom. Warmhouse orchids may be shifted carefully. The best way to pot these and other epiphytic greenhouse plants, is to crock the pot with pieces of charcoal or better with half-rotten chesnut-wood or carob-wood mixed with a little good leaf-mould and moss nearly up to the brim a mixture of moss and leaf-mould should be spread for

about half-an-inch and the roots of the plant spread evenly about and covered with half-an-inch of the same mixture, on the top a thin layer of fine moss may be spread to improve appearance and prevent undue evaporation. The plant may be kept in place by a strip of Raffia tied beneath the brim of the pot. The greenhouse should be sprayed with water early in the morning and free ventilation allowed for at least one hour at noon every day. Ornamental-leaved plants such as Caladium and Begonia are easily damaged by direct sunshine or by condensed water dropping from the glass of the roof in a damp greenhouse.

### Kitchen Garden.

Autumn and early winter vegetables may be sown now to be transplanted in place next month. Cucumber, gourds, melons, water melons, tomatoes, mad-apple, cap-sicum etc., should be watered regularly in order to get a continuous crop. Strawberry beds should have creepers of rapid growth such as punkin or gourds trailed over them to protect them from the sun which would scorch them, and should be watered occasionally to obtain stout runners for new beds. Fennel, Leek, Turnips and Carrots, may be sown now for winter vegetables, Cabbages, Cauliflowers, Broccoli and Kohl-rabi may be sown in beds, and the usual monthly seed-bed of lettuce should not be omitted.

### Orchard.

Early summer fruits are ripening, and the gardener should be careful to pick up all fruit damaged by the fruit fly. The valuable varieties of pears, peaches and nectarines should be wrapped in paper or provided with bags of cloth to keep off this pest which is unfortunately very common in every orchard. All stone fruited trees may be watered regularly every two weeks, till the 20th August, when further irrigation is unnecessary except for winter pears. All apples and pears injured by the apple moth (*Carpocapsa pomonella*) should be picked up every day

and disposed off so as to destroy the larva inside the fruit. Pears and apples should have the trunk and branches painted again with arsenical mixture to keep off the wood-borers, in the same way as indicated for April. In the Orange-grove the gardener has to continue the work commenced last month.

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## AUGUST.

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### Flower Garden.

The gardener has enough to do in irrigating his flower-beds, shrubs and ornamental trees. Without frequent irrigation the finest garden is soon reduced to a desert. The hardier bushes and shrubs should be watered at least once in ten days and the flower-beds twice a week. Summer annual creepers are the creatures of water, and with them especially abundant irrigation secures luxuriant growth. Few sights are so charming or refreshing as a wall covered with a tapestry of morning glory or moon creeper in full bloom. Other good summer creepers are *Mina lobata*, *Spomea Quamoclit*, *Argyreja*, *Antigononleptopus* and *Aristolochia elegans*, these last two being perennials. China Asters, *Zinnia*, *Tagetes*, Balsams, *Petunia* and other summer plants are in full bloom. Roses meant to flower in autumn and winter should be manured, watered and pruned before the end of this month, and irrigation should then be continued once in every few days until the rainy season sets in. Only teas, hybrid-teas, and hybrid perpetuals can be subjected safely to this treatment. Ornamental trees, particularly flowering trees should be watered at least once in a fortnight and trimmed as often to secure even growth. The larger trees should not be watered more than four or five times during summer. In order to water them properly they should have a trench, about as large as the shade of the tree and water supplied in sufficient quantity to reach the subsoil. Flower-beds should be kept free from weeds, and the soil frequently stirred about

the roots. Late summer annuals meant to flower in autumn may be planted now. Cactuses are in bloom and can be propagated now with the greatest ease. Roses and perennial creepers may be layered. Dahlias should be pruned back, so that new shoots may form, for autumn flowers. In this month we may sow the early Cineraria, Calceolaria and Salpiglossis, in shallow pots in good leaf-mould kept constantly moist and placed in a shady situation.

### Greenhouse.

During this month and a part of the next the greenhouse is at its best. Ferns, ornamental-leaved and flowering plants strive to surpass each other in beauty and a year's toil is amply repaid. This is the best time for leaf propagation of several greenhouse plants as Peperonia, Begonia, Tillandsia, Gloxinia, Tydaea, Vriesia, etc. Tabernaemontana, Achimenes, Gloxinia, Tydae, Sanchezia, Anthurium, Bouvardia, etc. are in bloom. Caladiums Begonia, Alocasia, Cyanophyllum, Croton, Dracæna, Fittonia etc. are displaying their gorgeous apparel. Fern seedlings are now sufficiently strong to be potted off singly in 2 or 3 inch pots. Greenhouse creepers may be layered. Give air to the greenhouse during the hottest hours of the day, but avoid dry warm draughts which are very injurious to greenhouse vegetation. Keep a moist atmosphere by spraying with water the shelves and floor of the greenhouse at sunrise and sunset. Insect parasites tend to increase rapidly in summer and should be kept down by the help of insecticides. Most of the work omitted last month may be done before the end of this month. Primulas and Streptocarpus may be sown now.

### Kitchen-Garden.

Plant cabbages, cauliflowers, kohlrabi also tomatoes and celery for autumn use. Sow endive, lettuce, leeks, turnips, scorzonera, chervil, parsley, also late-cauliflowers, broccoli, cabbages, brussels-sprouts cardoons and beet. Sow winter potatoes in beds and vegetable-marrow and squash for autumn use. Sow black-seeded or winter vege-

table-marrow. Sow two or four rows of peas in a shady corner. Manure and water artichokes for an early crop. Sow asparagus in a shady bed well manured and free from stones. This excellent vegetable, till lately almost unknown in our markets, is daily gaining in favour. It may be propagated by division of roots or from seed. The seed may be sown now in beds and the young plants after a year will be sufficiently strong to be planted out in place in January or February. Asparagus requires good loamy soil free from stones and should be planted in rows 2 feet apart. Thus treated it will produce good shoots the same year but after the third or fourth year the roots should be dug up in January or February, the earth richly manured and the roots after division planted out at proper distance. Summer vegetables such as mad-apples, capsicum, cucumbers, lettuce. New Zealand spinach and summer spinach should be watered frequently, and liquid manure supplied at least fortnightly.

### Orchard.

Stoned-fruited trees are mellowing their precious burden, and the fruit-fly has a good time of it. Rotten fruit should not be allowed to remain beneath the tree, and cloth bags may be put upon the more valuable fruit to save it from the fruit-fly; also fruits just beginning to ripen may be gathered and ripened in the fruit store out of the reach of the fruit-fly, Pear trees whose fruit ripens towards the end of August should not be watered within fifteen days before the fruit is taken in, otherwise the fruit will be too watery and keep very badly.

About the 15th or when the fruit is showing initial signs of maturity, it should be gathered and ripened in a well-ventilated store-room where it will develop its precious qualities better than on the tree. After gathering the fruit, the trees should be watered to prevent them from being thrown into bloom by the first autumnal showers which would destroy all hopes of a good crop for next year. Late pears should be gathered in September; and the large varieties which ripen in winter or early

spring should be allowed to hang on the tree until the last days of October, covered with their cloth-bags, and then gathered and stored with the greatest care. Fig-trees may be propagated by layers or cuttings, after the 14th, cuttings should be of sufficient length and planted deeply in a slanting position. Prickly pears may be planted now; the cuttings should be allowed to dry a little for a week and then planted, watered fifteen days after, once or twice, and then left to themselves.

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## SEPTEMBER.

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### Flower Garden.

The gardener will have now to bestow most of his time on Chrysanthemums. A year's toil may be lost through a moment's carelessness. The plant is at the height of vigour, good stout shoots have developed, and the flower-bud in most cases has made its appearance. The plant should on no account be allowed to droop for want of water, but should be watered daily at sunrise or sunset, and if necessary even twice a day. The plant should be watered with liquid manure once a week and kept clean from suckers, off-shoots and small twigs. Many Chrysanthemums come best on the 2nd crown bud, for some of them a 1st crown bud is preferable, and only exceptionally a terminal bud. Crown-buds generally produce the largest and most perfect blooms, terminal buds are always better coloured. Each shoot should be propped by itself so that the leaves may have their due share of air and light. Plants in pots should have from one to three shoots, extra-strong plants may be allowed four or five. Plants in the open-ground can bear as many as eight fine blooms. At the same time the habit of each variety should be well studied in order that the selection of the bud meant for show may be a correct one. When the bud is chosen the plants should be watered with liquid manure or with solution of nitrate of soda, one spoonful to a



gallon of water, with the result that the plant will throw all its strength on the formation of the bud. If given too early, guano, nitrate or other highly nitrogenous manures will only induce a luxuriant foliage and a vexatious cropping out of shoots and suckers. Sulphuring, or spraying with sulphide of potash or other mildew composition, will prevent the attacks of fungi; soot or tobacco powder or infusion will keep off insects.

Cineraria, Calceolaria and Salpiglossis may be sown in finely sifted vegetable mould. The seed should be lightly covered, and watered by placing the pot in a shallow vessel with water. Keep the pots constantly moist in a cool shady place and cover them with a pane of glass which should not be taken off before the appearance of the third leaf. Towards the last days of September, the gardener may sow the usual spring annuals and biennials, viz:—Pansies, Phlox, Gaillardia, Centaurea, Crepis, Omphalodes, Larkspur, Clarkia, Calendula, Iberis, Statice, Lobelia, Escholtzia, Poppies, Malcolunia, Aretotis, Minulus, Malope, Myosotis, Nemesis, Hesperis, Bellis, Mignonette, Silene, Verbena, also the biennials: Scabiosa, Antirrhinum, Aquilegia, Lunaria, Campanula, Dianthus, and the annual grasses. Stock and Wall-flower may be taken out of the seed-bed and planted in place.

Celosia, Amaranthus, Coleus and other ornamental leaved plants are at their best, as also the Alternanthera designs which should not be clipped, when the colours begin to develop. Dahlias and Zinnias are yet blooming profusely, but the beautiful Asters are fading. Seeds of the varieties of summer flowers should be selected with great care, and the ground cleared of weeds and decaying plants.

Lycoris aurea, Amaryllis Belladonna, and Formosissima, Sternbergia lutea, and other autumn bulbs are blooming.

### Greenhouse.

Greenhouse plants should be watered regularly but prudently; the least excess of moisture in the greenhouse during this month and the next will bring about the pre-

mature decay of ornamental leaved plants, and of bulbous plants. Plants may be shifted from one pot into another without disturbing their roots. Tuberous Begonias and Caladiums require resting. The greenhouse should be cleaned frequently to keep down insect life.

### Kitchen Garden.

The gardener may sow parsnip, radish, turnip, best scorzonera, salsify, horseradish, rhubarb, celeriac, celery, spinach, endive, chicory, leeks, parsley, chervil, sweet-herbs and the same vegetables already indicated for August. Plant in place cabbages, cauliflowers, broccoli, Brussels sprouts and kohl-rabi for a late crop. Plant tomatoes in a sheltered place for an autumn crop. A good autumn crop of vegetable-marrow can be obtained by sowing some of the newly gathered seed early this month: the young plants should of course be watered but hardly any other care is required. Bulbs of onions, shallot and garlic may be sown. The cantaloup melons are ripening. Artichokes should be manured and watered for an early crop.

### Orchard.

In the first days of September grapes will be sufficiently ripe for the press. Take in the autumn pears to ripen slowly under roof, but the late winter-pears must remain on the tree till October. Pick up all damaged fruits and destroy them or better remove them away from the Orchard. Walnuts are ripening and the first rains cause the thick green skin to break and shrivel, and the nut to drop. Pomegranates will begin to ripen towards the end of this month. If it is intended to plant fruit-trees next winter prepare the pits now and leave them open in order that the lower strata may have time to aerate themselves. Evergreen trees cannot be transplated with safety after the first rains. The orange-grove should be watered abundantly but at longer intervals. After taking in the fruit the pear tree should be watered, otherwise the first showers of autumn will throw it into bloom and next year's crop will suffer. The loquat is about to bloom and should not be left to suffer from want of water.

## OCTOBER.

### Flower Garden.

The sowing of all spring annuals and herbaceous perennials should not be delayed now. Before the end of this month, sow Calceolaria, Cineraria, Salpiglossis, Omphalodes, Gaillardia, Sedum, Coreopsis, Torenia, Alonsoa, Antirrhinum Aquilegia, Lunaria, Alihea, Campanula, Malope, Phlox, Linum, Geum, Alyssum, Centaurea, Digitalis, Crepis, Aubretia, Verbena, Dephinium Migella, Statice, Sweet-peas, Calendula, Pansies, Nemophila, Candytuft, Scabiosa etc.

Early seedlings of Cineraria and Calceolaria may be pricked off in pans, to strengthen before being potted separately or planted in place.

Plant bulbs of Hyacinths, Tulips, Freesia, Crocus, Tritoleja, Allium, Muscari, Scilla, Fritillaria, Ornithogalum, Narcissus, Ixia, Sparaxis, Galtonia, Gladiolus, also roots of Eremurus, Asphodel, Ranunculus, Richardia, Anemone, Kniphofia, Agapanthus etc. Hyacinths and Tulips cultivated in flower-pots should be planted in good vegetable mould with silver-sand.

Cuttings of Carnations, Picotees, Veronica, Geraniums, Pelargoniums, Ageratum, Heliotropium, Hypericum, Cuphaea, Agatheia, Gazania, Lantana, Callicarpa, and most herbaceous and half shrubby perennials can be planted now and throughout winter. Layers of Carnations and Roses can be removed successfully from the mother-plant. Pippings of Carnations and Picotees should be planted in shallow-pots with friable earth or vegetable mould, placed in the shade, but sparingly watered.

Roses can be transplanted with safety, and grafted if required. Cuttings can be planted in the shade of trees, where the moist heat of autumn will cause them to strike immediately.

Chrysanthemums are ready to bloom, and should not be left in want of proper nourishment. Constant inspection is needed to keep down new buds and suckers which otherwise will appropriate the nourishment meant for the flower-buds.

The longer nights and the cooler air of autumn allow most annual flowering plants to grow luxuriantly. Flowers now are larger, their colours are more lively, and they keep better than in full summer; indeed we may say that we have a second spring. The autumn Crocus, Sternbergia, Lycoris aurea, Herine undulata, and other autumn-flowering bulbs are blooming.

### Greenhouse.

Many tender shrubs and plants, as well as palms which have been placed in the open air in spring and summer, especially ornamental leaved plants, should be taken in for shelter to the greenhouse. Most ornamental leaved plants, are gradually fading off, except in very well situated and sheltered greenhouses. Water should be given carefully, and the greenhouse left open only about midday, but if the greenhouse is too wet, it may be kept open to a later hour. This is the season when decaying leaves, humidity and lingering heat favour best the development of parasitic fungi, especially in the greenhouse which should be cleaner than usual, and free from moist stagnant air. Hardly any propagation work is possible, except perhaps sheltering and dividing the more tender annuals, which thrive better if sheltered for a few weeks under glass. This is a period of rest for most plants and no manure should be given to greenhouse plants before February. Pine-apples should be sheltered in the greenhouse as soon as the evening air gets chilly, so that their growth may suffer no check. All the young ferns raised in the fern-frame may be potted off singly.

### Kitchen Garden.

Plant out from seedbeds, onions, celery, leeks, cardoons, endive, lettuce; also late cabbages, cauliflowers

and broccoli, Sow turnips, spinach, beet, carrots, borecole-chicory, parsley, parsnip, radish, scorzonera, peas, beans, and generally all kinds of winter and spring vegetables, meant to grow and come to maturity without artificial irrigation. Plant seedlings of tomatoes, and sow vegetable-marrow in sunny and sheltered corners. Divide roots of shallots, plant horse-radish, and clean strawberry-beds from runners and decaying leaves.

### Orchard.

If required, manure should be supplied now to the orchard. Manure may be dug into the earth, or better buried in trenches four inches deep, each trench made by drawing the earth in front into another trench behind it in the usual manner. Digging should not be carried too close to the the trunk to avoid the risk of injuring the large roots, where gangrene will set in immediately, this being the worst season for such injuries. Manure too freely given provokes luxuriant growth, to the detriment of the crop; it should be remembered that the orchard is not a kitchen-garden, and ought not to be manured oftener than once in four years. Stone-fruited trees, such as pears, peaches, plums, etc. are liable to suffer severely by an attack of gummosis from an overdose of manure. All dropped fruit in the orange-grove should be gathered and so disposed of as to prevent the larvae of the fruit-fly from developing. Winter vegetables may be grown in the orchard, if there are open spaces between the trees, and the vegetables are of a nature as to be ready for use not later than March, when the buds of fruit-trees begin to move.

Beans and peas agree best with the orchard on account of the fertilizing effect on the soil caused by the tubercles of their roots; but other vegetables can be grown successfully especially if the orchard has been manured that year or the year before.

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## NOVEMBER.

### Flower Garden.

Spring annuals, especially the earlier ones such as Cineraria, Pansy, Phlox, Calendula should be planted out in beds properly worked and manured. Raised beds are very recommendable as they keep off excess of moisture, and may be made use of in hardening young seedlings of spring annuals. The rock garden should receive a due share of attention, Alpine plants sown or planted in suitable places, and the greatest care taken to give to the rockery a natural appearance. Here the gardener has to imitate nature and his art is to leave no visible traces of art. Rockeries are rarely seen in Malta; this is perhaps owing to the fact that during winter and early spring all valleys and waste lands are one continuous rockery, teeming with the pleasant beauties of nature. Many Alpine perennials will do well here notwithstanding the heat of summer. Thus *Arabis alpina*, *Gazania Pavonia*, *Dianella*, *Campanula fragilis*, *C. Ranunculus*, *Aubretia deltaidea*, *Lychnis chacedonica*, *Ornothera punila*, *Cuphea bicolor*, *Trachelium coeruleum*, *Antirrhinum*, *Plumbago Larpentae*, *Bellis perennis*. and many tiny flowering bulbs.

Camellias, Azaleas, Gardenias and Rhododendrons may be shifted from one pot into another without injury. Many hardy ornamental and flowering plants can be likewise treated. Chrysanthemums are now in bloom and along with late Dahlias are the last stand of the flower garden against the encroaching winter, All spring and early summer flowering bulbs should be planted before the end of this month.

On rainy days turn and prepare vegetable mould, making use of dry leaves, plants and sweepings of the garden. It is very objectionable to work the land, or plant seedlings of annuals in wet weather; our reddish soil, if worked when wet, will become unfit for proper cultivation until the next autumn.

## Greenhouse.

Ferns may be shifted from one pot into another and propagated by dividing rootstock. Fern-spores may be sown by scattering them on moist evenly-laid soil in a shallow pot. Scrapings from moss-covered walls make a good soil, but no manure should be supplied. Constant moisture and even temperature are requisite, and as soon as the surface of the soil gets covered with a thin layer of blackish algae or low moss, the prothalli of the fern make their appearance. Most greenhouse bulbous plants are now on the wane, and care should be taken to preserve the bulbs from wet to prevent them from rotting off. Ornamental-leaved plants should be watered as little as possible. Bouvardias and other tender flowering plants require shelter in the greenhouse close to the glass.

Many fine orchids are in bloom; such are the *Cattleya labiata autumnalis*, *Oncidium Rogersii* and *Macraethum*, several *Dendrobis*. many species of *Cypripedium* etc., but those orchids which have bloomed in summer are now entering their resting season.

## Kitchen-Garden.

All plants in the seed-bed should be planted out unless meant to come to maturity in the seed-bed. Spring and summer vegetables, cauliflowers, cabbages, broccoli and kohlrabi should be sown. Turnips, radish, celery, carrots, and parsnips may be sown for a late crop. Pack in straw or earth up, early cardoons, celery and leek. Plant out endive, lettuce, chicory alkekengi. Sow peas and beans for an early crop. Plant cuttings of sweet-herbs, sage, sweet and pot marjoram, thyme, spear-mint, pepper-mint, sorrel, hyssop, balm, tarragon, wormwood etc. Sow the other sweet-herbs, also scorzonera, salsify, horse-radish, chervil etc. Take up winter potatoes, sweet potatoes and Jerusalem-artichokes. Plant out strawberries.

## Orchards.

The orange-grove is mellowing its precious burden, but oranges are not fully ripe before February. All othera

winter-keeping fruits such as pears and apples have been taken in by this time. The pomegranate is ripe, and on account of its keeping qualities should be more valued than it is at present. The fruit store should be inspected daily and all rotten fruit removed; dampness injures the keeping qualities of most fruits. The lotl or kaki are ripening, and later on the ripe fruit hanging on the bare branches presents a most interesting sight. The kaki is an excellent dessert fruit which grows well here, and there is no reason why it should not be more extensively cultivated. Olives are ripening and should be gathered without delay to prevent waste and deterioration of the useful berry.

Now is the proper time to order fruit trees from abroad, and I may recommend the importation of fine varieties of stone-fruited trees, especially pears, and other fruit-trees such as kaki, walnuts, olives, figs etc., to be planted in January or February.

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## DECEMBER.

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### Flower Garden.

Most spring annuals should be planted before the end of this month, excepting such as are meant for late spring blooming. Raised beds are very useful for tender annuals which are liable to suffer from an excess of moisture. Some spring annuals will thrive in the shade, indeed too much sun is likely to injure them: such are: Cineraria, Senecio, Pansies, Silene, annual Campanulas, and Sedums. Before planting annuals, the ground must be deeply dug and manured, but too much manure supplied to the plants when quite young will cause them to develop too much foliage to the detriment of the flowers.

Plant borders of Myrtle, Santolina, Box, Pyrentherum Salvia, Rosemary, etc. Give the first shift to young rooted plants of Carnations raised from cuttings in October.

Carnations grown in pots require good red earth well mixed with sand and old manure; the pot must be well drained and placed in a dry sunny corner in the garden.

This is a busy time for rose-tree growers. Roses can be transplanted with or without a ball of earth, pruned and manured; cuttings planted, or wild roses, such as the briar, the dog-rose, the evergreen rose etc. grafted with nice or new varieties. Geraniums are growing fast, and must be made to assume a round shape, which greatly enhances their bloom. Those grown in pots, ought to be repotted with new soil and trimmed down to shape, Tubers of Dahlias and bulbs of Tuberose ought to be dug up and kept in a dry place until spring.

Perennial grasses such as Gynernim, Andropogon Eulalia, Mischanthus, Isolepis, Stipa, etc. can be transplanted or propagated by dividing rootstock.

### Greenhouse.

As ornamental foliage plants are waning, a few choice Geraniums, Bouvardias and Primulas will show life if introduced in the greenhouse, where they will grow and flower better than in the air. Pick off dead, dying or mouldy leaves and keep the floor and shelves clean. Cleanliness is particularly essential to greenhouse plants during winter. Give water sparingly, and where possible make use of water from wells or deep cisterns, avoiding the cold water of ponds. This month is a very unfavourable one for the propagation of greenhouse plants generally, and all we can do is to keep alive the young plants not yet strong enough, through this month and a part of the next.

### Kitchen Garden.

Most winter vegetables are ready for use. General cultivation may be continued on the same lines as last month. Summer vegetable-marrows is dying off, and in its stead the black-seeded marrow supplies this tender vegetable during winter until April. Dig up and store Jerusalem artichokes and sweet potatoes. Spring pota-

toes should be planted in a sheltered spot for an early crop. Towards the end of this month, sow capsicum, tomatoes, chillies, okra, mad-apples and other early summer vegetables, in a bed well supplied with half-fermented manure and placed in a sunny and sheltered corner. Sow beans and peas for a late crop. Plant out onions, and sow onions if spring onions are desired. Dig and manure artichokes for an early crop of large head. Winter varieties of lettuces can be planted.

Before long the Pieris-butterfly will be seen hovering over cabbages, cauliflowers and kohlrabi; catch and destroy as many as you can, and seek and destroy the clusters of yellow eggs of this insect on the under surface of the leaf.

## Orchard.

Pruning of the vine, the fig and deciduous fruit trees generally may be commenced. Plant cuttings of vines, figs, mulberries, quinces, apple, hawthorn, and transplant suckers of wild plum, wild pear and wild cherry to be used as grafting stock. Graft pears on quince, wild pear, and hawthorn; graft apples on own suckers and on hawthorn; graft plums on wild plums; graft peaches, nectarines and almonds on bitter almonds and on seedlings; graft apricots on wild plum and almonds; and cherries on own suckers. Vines may be grafted, and almonds, nectarines, peaches, plums, and walnuts sown. Deciduous fruit trees can be transplanted safely without any ball of earth; in planting, care must be taken to place the trunk as deep as it was originally, the branches trimmed down to convenient size, leaving only strong spurs, but the roots must be treated with great care, and no large wounds made on the trunk, roots, or branches. The roots should be spread evenly in a pit of sufficient size, without overcrowding, the soil filled in and pressed down firmly. Some manure must be supplied to each tree, but it should not be in immediate contact with the roots.

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## ROSES.

It may safely be said that Roses succeed wonderfully well in Malta if they are treated properly, and well repay any trouble the grower has lavished upon them. To grow them to perfection, or even to grow them at all they must have sun for at least several hours a day. They like the morning sun best and do not object to being shaded in the afternoon if that is possible, but the latter is not essential and too much sun is preferable to too much shade.

Roses should be planted in a place as much as possible to themselves and will not submit to having other shrubs and trees as near neighbours, not only on account of the shade these must necessarily give but because of the roots of the latter which extend a very considerable distance below the surface of the ground. I had to transplant a large number of roses not long ago from a very favourite place owing to a neighbour having some large plants of cactii and bamboos on the other side of my wall the roots of which had overrun all my rose garden.

The question of laying out a rose garden must be left entirely to the taste and fancy of the owner, and must depend upon the space available; plants should not be nearer to each other than 4 to 6 feet, for roses love plenty of air and if they are nearer than that there is difficulty in pruning and picking, and tilling the soil of the beds, except in the case of dwarf or bush roses which could be put much nearer together. The soil that suits roses best in Malta is the red earth, as fresh as it can be obtained, and all the better if it is "virgin" soil, but it must be rendered porous by mixing with it well rotted manure, some coarse sand and a little charcoal siftings.

The best time to bring roses to Malta is in the months of November or December, but they can be planted even as late as February. On arrival they should be most carefully unpacked and the roots kept covered up until ready for planting, and a good plan is to dip the roots in a bucket containing a fairly thick soup made up of red earth and water, the earth adheres to the roots, refreshes

them, prevents the air getting to the roots and makes them assimilate quicker with the soil in which they are planted. The ground should if possible have been prepared in August or September by digging it deeply in trenches and a good supply of manure mixed with the soil and let to lie fallow until the roses are planted. In case this cannot be done, then the following which has been adopted by Col. McKean with success may be tried. Dig a hole where the rose is to be planted; prepare a compost of  $\frac{1}{2}$  good red virgin earth,  $\frac{1}{4}$  well rotted manure, and  $\frac{1}{4}$  leaf mould and add a little charcoal siftings, get a round bottomless cylinder of thick tin or iron about 15 inches in diameter and the same depth, with a handle at the top; place it in the hole you have dug, the top of the cylinder about three inches below the level of the ground: put a little drainage at the bottom, fill it half full with the compost, place the rose on top of this and then fill up with the compost, press firmly down, fill in with earth all round the outside of the cylinder, then withdraw the cylinder and press the earth firmly down all round, and the result of this is that the rose is planted in prepared ground, the roots have a good chance of growing and will no doubt be able to look after themselves when they get outside the compost, by which time you have no doubt been able to get the ground in better order.

The following remarks on roses cultivated in pots and in the open ground are taken from an article published by Dr. J. BORG, M.D. : —

Roses cultivated in pots require more careful handling. At least a 9 inch pot should be used. The pot must be well crocked and drainage facilitated. The best compost is a mixture of  $\frac{1}{2}$  red virgin earth,  $\frac{1}{4}$  well rotten manure and  $\frac{1}{4}$  leaf-mould. Until active vegetation sets in, the gardener should be very careful not to give too much water, but when stout shoots are growing and the buds appear, the rose requires frequent, even daily waterings. Except in cluster-roses never allow more than one bud on each shoot and when the flower fades cut down to a healthy eye, and never allow the fruit to form.

When the buds are forming, a little guano, two or three tea-spoonfuls dissolved in water to a 9 inch pot, or one or two waterings with liquid manure will swell the bloom to a large size. A dressing of bone-meal, phosphatic guano, or superphosphates in February or after mid-summer, will aid the formation of wood and give a vigorous bloom in spring or autumn.

Roses cultivated in pots get old and stunted sooner than in open ground. Early in February, and when no chemical manure, is used also in September, the rose should be taken out of the pot, the exhausted earth shaken off, the roots and branches trimmed and the rose repotted immediately with the compost above mentioned. Rose pots should not be crammed together, but free access given to light and air; although when the buds are blooming the pots may be shifted to a half-shady place to improve the colour and prolong the bloom.

To obtain an abundant crop of blooms in autumn from perpetuals and hybrid teas planted in the open ground, water sparingly during summer up to August, nip off all flower buds on their appearance; about the middle of August give a good supply of manure and soon after a copious watering. Repeat irrigation every fifteen days and the result will be a veritable host of fine blooms from October to December.

The pruning of rose-bushes is a delicate and difficult gardening operation not generally understood. The bush should be pruned in the form of a vase, by removing the inner and overcrowded branches. All useless wood should be removed, the shoots which flowered shortened to a good eye, and the rose bush cleared of all thin weak twigs and sprays which prey upon its resources, without being useful in any way. Roses should not be pruned while in active vegetation, and many varieties if pruned too freely are liable to become shy bloomers. Climbers should be only moderately pruned in January or February.

Cuttings may be planted in October, and November in a shady situation where they will strike immediately.

They may be planted also in January or February, the earlier the better. The earth should have only a small quantity of rotten manure, and if this cannot be had, better do without manure at all.

Layers may be made in March or April and not separated before autumn, the same compost as that suggested for roses in pots may be used for layers. Cuttings and layers should be prepared in the usual way and if successful are as good a way to multiply a variety as any other. But these processes at present are rarely used by continental growers and nurserymen.

The rose is liable to numerous diseases, and to give a descriptive list of them would swell this article to a book. We shall only mention those most important and common.

Injury from frost in Malta is only noticeable in February and March on the young shoots. The shoots are rarely destroyed, but the tender leaves and blossoms acquire a blighted and contorted appearance. To prevent this injury spray the young shoots on frosty mornings with fresh water from the well.

The most common insect parasites are the may-bugs, *Lencococelis funesta* and *Epicometis squalida* (*busuf*) which prey upon the blooming flowers, the larva of a borer which destroys the stem a little below the surface of the ground, the *Aphis* which checks the growth of tender shoots, and a species of *Aspidiotus*, a scale-insect which is very common in thickly planted or neglected rose-grounds. The may-bugs and the borers may be picked and destroyed. *Aphis*-stricken roses may be fumigated, or simply sprayed often with fresh water. Against the *Aspidiotus* close pruning is recommendable; and if it fails, fumigation with hydrocyanic acid or any other of the well-known methods for combating scale-insects may be adopted.

The most salient fungous parasites are rose-mildew, rose-rust and sooty-fungus. Rose mildew, *Sphaerotheca pannosa*, which covers young leaves stems and flower-buds with a white mealy powdery substance, checks the growth

of the shoots, deforms the flower-buds and often kills them. As a preventive, powder the rose-bushes with sulphur or still better with sulphur containing 3 to 5 % of sulphate of copper, as soon as the disease makes its appearance. A weak solution of sulphite of potash (1 %) or Bordeaux mixture is equally efficient as spray. Rose-rust, *Uredo* (*Phragmidium*) *Rose*, appears as golden or orange yellow powdery grains on the under-surface of the leaves, which soon turn yellow and drop. In this way the rose may be stripped of its leaves in the midst of the flowering season. All dropped leaves should be picked up and burned to prevent the disease from spreading, and the infected rose, along with the other roses around it, treated as indicated for rose-mildew. Another fungus causes black swollen spots in the substance of the leaf surrounded by a yellow areola. It causes the same injury as the rose-rust and may be similarly treated. Sooty-fungus *Meliola* *Penzigi*, appears in summer in the form of black sooty crust upon the leaves, which it renders very unsightly; but in reality the rose does not appear to suffer much injury, even from a bad attack of this fungus.

Crimson Ramblers and the like should not be planted against a wall, they require a free circulation of air all round: and although some climbing roses do well on walls it is better if possible to have some sort of trellis fixed to the wall so as air can get to them behind, otherwise the heat from the wall when exposed to the sun for several hours scorches them up. This can be done cheaply and easily by getting some bamboo poles and fixing them diagonally on to the wall.

Nearly all tea and hybrid tea roses seem to thrive very well in Malta, and so do the perpetuals but the latter require more care.

It is very difficult to keep standard roses, and moss roses do not do well.

Roses in the ground can be freely manured in Malta after they are once established, and the best time to apply

it is in the spring and early autumn; the liquid manure can also be given fairly often, so long as the plants are growing and flowering, but on the principle of weak and often, rather than strong, and seldom when the plants are at rest. Grafting should be done in May and September and cuttings taken in December and January.

The following is a list of some Roses which have been known to do well in Malta—they are taken from the Catalogue of Gemen et Bourg, rose growers of Luxemburg, who have supplied roses to a great number of growers on the island and have generally given satisfaction :—

#### TEAS.

Alexandra.  
Bardon Job.  
Baronne H. de Loew  
" H. Snoy.  
Beauté Inconstante.  
Christine de Nouèè.  
Ceres.  
Dr. Grill.  
Duchesse d'Amerstadt.  
" Maria Selviati.  
Fée Opale.  
Franziska Krüger.  
Glorie de Dijon.  
Marchel Niel (rouge)  
Kaiserin Augusta.  
Kaisarin Friedrich.

Ma Capucine.  
Mme. Creuse.  
Maman Cochet.  
Marchal Niel.  
" " white.  
Marie von Houtte.  
Monsieur Désir.  
Muriel Grahame.  
Papa Gontier.  
Reinè Marie Henriette.  
Sappho  
Souvenir de Mme. Lnie. Viennot.  
The Bride.  
Viscontesse Folkstone.  
Souvenir de P. Notting.

#### HYBRID TEAS.

Augustine Guinoisseau.  
Belle Siebricht.  
Caroline Testout.  
Climbing Kaiserin Auguste  
Victorié.  
Danmark.  
Gruss an Toplitz.  
Le France.  
" de 1889.  
Liberty.  
W. F. Benett.  
Climbing Belle Siebricht.

Climbing Caroline Testout.  
Mildred Grant.  
Princesse M. Watchersky.  
Celine Forestier.  
Chromatella.  
Earl of Eldon.  
Rène d'or.  
William A. Richardson.  
Mr. Basanquet.  
Mr. Pane.  
Souvenir de la Maolmaison.

### HYBRID PERPETUALS.

A. K. Williams.  
Bacchus.  
Brother Gemen.  
Captain Christy.  
" " red.  
Duke of Connaught.  
Earl of Dufferin.  
Fisher Holmes.  
Frau Kal Drusoki.  
Frere Marie Pierre.  
John Hopper.

John Laing.  
Magna Charta.  
Margaret Dickson.  
Marie Bauman.  
Master John Laing.  
" S. Crawford.  
Paul Neyron.  
Pierre Notting.  
Prince Crown de Rohan.  
Ulrech Brunner, fils.

## CULTIVATION OF PELARGONIUMS

BY MR. G. MOMPALAO DE PIRO.

The practice prevailing here is to strike cuttings in October. This is certainly the safest and easiest plan, as little or no care is required except that of sheltering them from the sun until they root: but this has the drawback that they will not flower the first year at the flowering seasons, viz: in April, at any rate they will not shew good blooms, if any at all; I find that cuttings taken at the beginning of June become very fine plants by the following April. They require however to be dealt with more carefully than if taken in October. They should be struck in very small pots and very light sandy soil used. It is well to place them in the coolest part of a glass house, or sheltered place for about a fortnight and water given very sparingly, then they can be removed to the open air but sheltered from sun and wind. As soon as they root and attain a height of five or six inches they should be cut down to four or five leaves. When repotting it should be borne in mind that good drainage is of great importance as pelargoniums, especially the regal qualities, are much liable to rot if the roots become sodden—Pelargoniums hardly require any watering during the winter except when a persistent drought prevails as what they get from rain is enough. Should they become soaked from continuous rain it is well to turn the pots on their sides

until the soil gets a little dry. Watering must begin at the end of February at first moderately and increasing regularly in quantity, when the plants show buds and until they have finished flowering water should be given abundantly, at the end of May or beginning of June, the pruning of the plants should be proceeded with, each branch cut down to five or six leaves—this will prevent the plants from showing too much wood in the second year when they should be at their best and should present a perfect shape: when the cutting of the plants has taken place they will require very little watering. Care should be taken during the summer to limit watering to the amount strictly necessary. The plants should be placed under a trellis or where they are not for long exposed to the scorching rays of the sun. After the middle of September pelargoniums should be cut again. In winter they should get as much sun as possible, but sheltered from the wind. The compost I use is Malta red earth rendered porous by the addition of a fair quantity of sand and well rotted manure, well mixed. Should the plants have too many branches as to prevent the free circulation of air, some of them must be cut away.

The above remarks refer more particularly to the pelargoniums known as regal or rex kinds, but they apply equally well to the zonals: except that the zonals are quicker grown and it is not necessary to plant cuttings until October or November.

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## CARNATIONS

BY MR. OSCAR SAMUT.

### SOIL.

The Carnation thrives in all kinds of Malta earth, but succeeds best in good virgin red soil well manured, to which should be added a certain amount of wood ashes—as this serves a double purpose (a) it supplies potash of which the carnation is very greedy, (b) it prevents to a great extent root rot which destroys a good number of these

plants in the late summer and autumn months.—It is most important to use wood-ashes when planting in pots, and the soil should be thoroughly well drained, but it must be remembered that wood ashes cannot be used unless the soil is manured at the same time, as potash without an adequate proportion of ammonia does more harm than good. Although the carnation likes a rich soil, liquid manure does not seem to agree with it.

#### SITUATION.

Carnations like a very sunny situation : they should therefore never be planted under trees or very close to shrubs where they are likely to be shaded.

#### VARIETIES.

The cultivation of the English border Carnations should not be attempted in Malta, as they do well the first year and then die out. The American Tree Carnations, and the French perpetual flowering varieties all thrive very well.

#### PLANTING.

The best time to sow seeds is early in September, as the seedlings should be ready for potting out in October and the plant should commence flowering in May.

Layering can be begun with some kinds in September, with others not before the last days of December. The safest plan is to do the layering when the plant is growing well and never when it is in an almost dormant state. Layering and planting cuttings should therefore not be attempted between June and September.

Plants or cuttings of whatever kind should be imported early in the autumn.

During the time that the plants are not in full growth, care must be taken not to over-water them, or root rot will set in.

Hybridisation of Carnations can be very successfully carried out in Malta with most excellent results. Although the English border varieties have been mentioned above as

unfit for this climate, still they are invaluable for purposes of hybridisation. The beautiful pencillings and markings found in this kind are unsurpassed by any other variety. The most important points to be observed are (a) depollenization, (b) absolute freedom from contact with other flowers. Depollenization should be done before any of the anthers enclosing the pollen have burst, as self-fertilization is very common in Carnations and should any one of the anthers enclosing the pollen have burst in the course of the operation, that flower should be at once abandoned. Seclusion is very easily obtainable when the subject treated is planted in a pot, but when it is in the open ground especially if at all near to other carnations flowering at the time, a cover of light muslin or other similar material should be provided to prevent the flower being fertilized by bees or other insects or even by pollen carried from a flower by the wind. The moment for doing the operation is indicated by the growth of downy matter on the pistils of the flower from which all anthers have been previously removed. The pollen can be carried to the pistils by means of a small brush or by plucking off the anther with the mature pollen and bringing it in contact with the flower it is desired to hybridise.

Hybridisation can be done according to the amateurs fancy but should always be carried out with some special point in view *i.e.*, to obtain large flowers, perpetual flowering varieties, spring flowering varieties, or to improve the colouring of a class which is satisfactory in all other respects, as well as to improve the shape of the flowers.

#### GATHERING SEEDS.

There are some varieties which produce any amount of seed, and in this case some good specimens should be allowed to run to seed. The more double varieties are generally supposed not to produce seed, but this is an erroneous impression, as almost all kinds of carnations produce, at least a few seeds. The carnation which is thought to produce no seed, generally lacks either the pollen anthers or the pistils, and in some cases both. But these

plants almost invariably, and generally towards the end of the flowering period, produce a few flowers having both pollen and pistils, and the gardener should take good care to use these latter for hybridisation or allow them to run to seed. The seed pod should not be cut before the calyx has turned yellow and should be allowed to dry perfectly in a ventilated and dry place before the seed is taken out of the calyx.

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## CHRYSANTHEMUMS.

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The chrysanthemum thrives admirably well in Malta in the open ground and is easy to cultivate. The ordinary red soil mixed with leaf mould and old manure is suitable. Cuttings should be struck between the first week of January and the end of February. It is a good plan to lift the plants every year from the ground, and take off the rooted suckers and to re-plant them, adding a little fresh soil and manure and to throw away the old plants. A sunny position clear of trees is essential, and plenty of water in the growing season. The following article on growing for exhibition, is written by Mr. John Briffa, late Hon. Sec. of the Malta Horticultural Society, a well-known and very successful cultivator of these beautiful plants.

### Growing for Exhibition.

The progress effected in gardening since the formation in Malta of an Horticultural Society has been evidenced on all occasions at Flower Shows held from time to time by the Society. Chief among these is the one held in the yearly part of November commonly known as the Chrysanthemum Show.

The Chrysanthemum from the date of the first show has steadily increased in popularity, and the number of new varieties constantly introduced is remarkable both for size and for beauty of flowers.

Success in Chrysanthemum growing is achieved, as in all other pursuits, by doing the right thing at the right time, and by constant and unremitting attention given to the plants from start to finish. This it must be admitted, is a most arduous task; in fact, it is doubtful if in the entire horticultural arena any severer test of skill and perseverance could be named than in the production of a winning stand of Chrysanthemums.

The perfection to which the Golden Flower has already been carried, is due to the *principle of exhibition*, and growing Chrysanthemums for this purpose has now been raised to a fine art, or rather an exact science; so that, those who desire to win, must make it a special study and follow such methods as those practised by the best growers.

### Propagation.

In growing Chrysanthemums for the show bench, the first duty of the aspirant for the first prize is to secure good strong cuttings. In a general way cuttings are taken from plants on which flowers have been growing for exhibition. These are cut down to about 12 inches of stem after the flowers have been removed, and are placed in an airy and sunny part of the garden. As the new shoots attain the right size take cuttings from them. Those which are clean, solid, and wiry, and about four to five inches from the surface and are farthest from the stem, taking their tops about three inches long, are the best, while thick and sappy ones, and stem cuttings are to be avoided. Stem cuttings very often throw premature buds, and are likely to reproduce the faults of the parent plant if it had any; but in case of shy, new, and expensive varieties, stem cuttings are better than none.

In this way fairly good cuttings may be obtained, but it must be remembered that the high feeding which exhibition plants receive is decidedly detrimental to the embryo cuttings. On this account it is therefore advisable, to those who can afford it, to grow a separate set to furnish cuttings, the plants themselves producing fine flowers for table decoration.

Cuttings of the right description should be secured sometime between the first week in January and the end of February at the latest, beginning with the late flowering varieties first. The soil should consist of equal parts of our red maiden loam, leaf mould and sand, and should be ready beforehand and kept under cover so as not to be too moist when wanted. The best method of striking cuttings is that of placing one in a thumb pot, but if these are not at hand, cuttings may be struck round the edges of a 4 inch pot, placing about four cuttings in each. Press firmly and give them a good *soaking of water* through a fine rose. Have the plants correctly named or numbered, the corresponding name being written in the reference book, and place them in the boxes with a sheet of glass over them to keep in the moisture whilst rooting is being accomplished, and shade from sun.

The cuttings will be rooted in about three or four weeks, and as soon as this occurs they will begin to grow. By this time the glass should be tilted for a day or two to harden them, then taken off altogether, and the plants removed to a light and airy position.

### Second Potting.

As soon as the cuttings are nicely rooted they may have their first shift into larger pots; those growing round the edges of a 4 inch pot may be knocked out of the pot and carefully divided. The size of pots for the first shift will be 4 inch, in diameter, and the soil for this potting should be composed of four parts red loam, one part old manure, one part leaf mould, one-eighth part coarse sand and one-eight part charcoal or wood ashes. Crock the pots carefully, taking care they are both clean and dry, make the soil moderately firm, sprinkle the plants overhead with a fine rose, and give water very sparingly for a time until the roots begin to work freely in the fresh soil. If the sun is very bright they may want shading for the first few days.

As the plants become well rooted in these pots they must be again shifted into larger ones. It is a very bad

practice to shift a plant before it really requires more root-room, for convenience, or for the sake of adhering to any given date ; while on the other hand no plant must be allowed to become really pot-bound at any time, until the flowering stage has been reached, so that an examination of the roots is the best and only safe guide.

### Third Potting.

The next shift should be into six-inch pots and the compost should consist of three parts red loam, one part manure, one part decayed leaves, one-eight part sand, and one-eight part charcoal or wood ashes.

Commence by putting one good-sized crock hollow-side downward over the hole in a clean pot and cover this with a layer of smaller pieces. Next put in some of the compost for the roots to rest upon. Turn the plant out of the four-inch pot by giving it a tap on the bench, remove the crock from the bottom without breaking any roots, and stand the plant in the centre of the new pot so that the top of the soil will be about three quarters of an inch below the rim of the pot. Hold it in position until sufficient soil has been put in to keep it upright, ramming it gently and evenly all round until it is filled level to the crown of the plant. Again give water sparingly for a time, rather than run the risk of souring the soil by making it wet before there are any roots to absorb the moisture. When the pot becomes full of roots an abundant supply of water must be given to go through the soil. It is most important that this should be done at one operation, for if they are gone over the second time, the soil will be made into liquid mud with holes and heaps instead of being level.

### Final Potting.

The proper size for the flowering pots varies from 8, to 10 inches in diameter according to the constitution of the varieties. For the stronger growing varieties use the largest pots, and for weaker ones use the smaller sizes.

The very best soil should be employed. Good, sweet maiden red loam from Musta and its neighbourhood is excellent for the purpose. The compost should consist of the following proportions: three parts loam, 1 part manure, one-half part leaves, one-eighth part sand and one-eighth part charcoal or wood ashes. Clay's or Thompson's, or some other approved artificial manure should be added to this in the proportion of a pound to eight gallons of loam, and a four-inch potfull of soot. Thoroughly mix the whole of this together by turning it over three times at least.

Having thus prepared the soil, washed and dried the pots, a start may be made with the most forward and best rooted plants first, by placing a large clean crock hollow-side downward, over the drain hole of the pot and then about an inch of smaller ones. Upon the drainage put some of the roughest part of the soil. The compost next put in must be well rammed down with a stick. The plant is placed on this, after the drainage has been carefully removed from it, the base of the stem should be about two inches below the rim of the pot. Fill in all around, and carefully ram down until the surface roots are covered with about half an inch of soil, and leave the rest for top dressing. The final potting may take place about the end of May; but in any case do not repot any before the six-inch pots are full of roots.

For two or three weeks after the final shift has been given, or until the roots are working freely in the fresh soil, water must be given cautiously. When the pots are full of roots and the plants are in full growth an abundant supply of water must be given to moisten every particle of soil and root in the pots and it shows itself through the drainage hole.

During the summer months place the plants in a thoroughly open and airy position, fully exposed to the power of the sun throughout the entire day. The sides of the paths of a garden are good places for them where they can be arranged in single rows, provided there is plenty of room and no trees shading them.

The plants should have now one good stick put to each shoot, tall enough for the plant. Bamboos are the best. They are strong and last several seasons.

It is a good plan to syringe the plants with clear soot water, it tends to keep Aphides and other pests down, and keeps the foliage clean.

Other details of summer routine will be the removal of side shoots as fast as they appear and also nipping off suckers which push through the surface of the soil.

### Feeding.

Feeding or the use of liquid and other stimulating manures is a most important point, and in nothing is discretion more necessary, for though to a certain extent absolutely indispensable, if in the least everdone harm is certain to result.

When the flowering pots are well filled with roots and the plants becoming pot-bound have taken all the nutriment in the soil, food must be given in some form, or the plants will starve. This seldom occurs before the end of July, even with the most vigorous growers; but whenever the pots are full of roots the plants must have additional food.

Begin by just colouring the water with the stimulant used and gradually increase the strength and frequency of application until the flower buds are fully developed, and as they begin to show colour, gradually discontinue the stimulants until nothing but pure water is supplied by the time the flowers are fully expanded.

There are many good manures such as cow, horse, sheep, chicken or pigeon, so that there is no trouble in giving the plant a change. Put some in a bag and immerse it in a tub which should be filled with water, let it soak for a day or two, and use the liquid, diluting it a little if it appears too strong.

Of artificial manures, Clay's, Thompson's, or guano, either Peruvian or Ichtlemic, are all good, but none of the

kinds should be given twice in succession, they should be applied in rotation with the other manures before-mentioned, and with at least one application of pure water between each dose of stimulant.

Nitrate of soda and sulphate of ammonia are two very highly-stimulating salts, both containing a large amount of nitrogen. They are invaluable to Chrysanthemums when cautiously and judiciously employed. They may be given in the form of solution of from  $\frac{1}{4}$  oz. to  $\frac{1}{2}$  oz. to each gallon of water, but they should not be applied, as a rule, more than twice during the whole season. Never give a plant liquid manure when dry; but first give it a good soaking of clear water.

A top-dressing of the same compost used for the last potting, with half part extra manure added, given in early August, shortly before the flower buds begin to appear, is a great aid to the plants.

## Breaks and taking the Buds.

A young plant if left to take its own course continues to grow on one stem until a bud is formed, sometime in May or June. This first bud is called the first break, because the plant throws out shoots all up the stem. The bud formed is removed, and, as a rule, three of the shoots that succeed it are retained and will continue to grow until another bud is formed which is called the first crown bud. Immediately below it, three or more shoots push out and if these side shoots are pinched or cut out the strength of plant will go into the bud, which will then swell and expand into a flower; but if the bud is removed, the shoots extend until another bud called the second crown bud is formed—which is generally the one that will produce the show flower—and can be “taken” by nipping all growth below it directly these can be got hold of. If, however, these growths are allowed to remain they will extend and produce, not a single bud,

but quite a cluster of them around and below the farthest or central one which is called the terminal, this marking the termination of the plant's growth except from the base.

“Taking the buds” really means securing or retaining them, by removing the side shoots surrounding the buds. If the bud be left too long after showing, the side shoots will rob it of sustenance until it goes blind. Care must be taken, too, that the bud may not be broken off. The best time for bud-taking is early in the morning, when the shoots are fresh and brittle. In taking a terminal bud, all others clustering round it, as well as those springing from the axil of the leaves below, are removed. It is not a good practice to take off all the side shoots surrounding the bud at once, the check it causes to the plant sometimes causes the bud to go blind. The best way is to pinch or cut them out, a few at a time, at intervals of two or three days.

### Stopping and Timing.

One of the most important points in the cultivation of the Autumn Queen for exhibition, that will puzzle the beginner, is without doubt that of stopping the plants and timing the flowers so as to have them all just at their best by the date of the show.

Generally speaking amateurs grow a large number of plants and trust to chance to get a sufficient number of perfect blooms in proper condition at the right date. This method is both costly and unsatisfactory, as many of the best flowers will be found still undeveloped or past their best at the time required. Therefore, if all are to be in perfection at once on the given date (which is usually during the first or second week in November), it is necessary to study the peculiarities of each variety, and by stopping the plant—that is pinching out the top of the shoot to secure an earlier break than the plant would make naturally—it should be made to produce flowers of the greatest perfection one, two, or three weeks earlier than

it would do by allowing it to make its break in its own natural way.

Exhibition varieties of Chrysanthemums may be classed in respect to their flowering into late October varieties, early November, mid-November and December varieties. Some of these produce their best flowers on the first crown buds, others on the second crownbuds, and a few on the terminal.

The following are the different methods of culture referred to in Mr. Jones' Guide, which will prove very helpful to those growing Chrysanthomums for exhibition. They are alphabetically placed against each variety in the succeeding pages.

- A. Pinch off the tip of the shoot about the first week of April, and secure second crown buds.
- B. Pinch the plant during the third week of May, and secure first crown buds.
- C. Let the plants break naturally, and secure first crown buds.
- D. Let the plants make a natural break, and secure late crown buds. (approximately third week to last week in August.)
- E. Pinch the plants during the third week of April and secure second crown buds.
- F. Pinch the plants during the first week in May, and secure first crown buds.
- G. Pinch the plants during the third week of March, and secure second crown buds.
- H. Pinch the plants during the second week of April, and secure first crown buds.
- I. Allow the plants to break naturally, and secure second crown buds, but propagate early in the year or during December of the previous year.
- J. Pinch the plants at the end of February, and secure first crown buds.
- K. Stop early in February, and secure first crown buds.

- L. Pinch 1st March for second crown.
- M. Stop 1st March for first crown.
- N. Stop first week in March, take up three shoots, stop again last week in May, then secure first bud.

## Selection of Varieties.

In the selection of varieties for exhibition, amateurs must consider the number of different varieties required and chose these from the most reliable and tested kinds, and in case of new varieties seek the advice of up-to-date growers.

Appended is a list of twenty-four Japanese varieties, all of which can be confidently recommended as very good show varieties, and which have been tried under the local climatic conditions with success. An additional list of forty-eight fine Japanese exhibition varieties is given for the guidance of those who wish to add a few more to their collection. Some of these are of recent introduction.

Finally a list of thirty-six Incurved is given which includes the best show varieties in this class.

### TWENTY-FOUR JAPANESE VARIETIES.

F, Australie	A Mafeking Hero
G Calvat's Sun	E Miss Lily Mountford
C Commonwealth	I Miss Mildred Ware
H Duchess of Sutherland	A Miss Nellie Pockett
J Florence Molyneux	A Mr. T. Currington
C F. S. Vallis	E Mrs. Barkley
C General Hutton	C Mrs. Geo Mileham
C Godfrey's Pride	F Mrs. J. C. Neville
D Henry Stowe	A Mrs. T. W. Pockett
A Madame Carnot	A Mrs. W. Mease
H Madame P. Radaelli	G Sensation
C Madame WaldeckRousseau	G W. R. Church

**FORTY-EIGHT JAPANESE VARIETIES.**

B	Bessie Godfrey	M	Miss Kathleen Stoop
E	Calvat's 99	E	Mr. Louis Remy
D	Charles Davis	H	Mrs. Barbour Turnbull
G	Charles Longley	C	Mrs. C. F. Boosey
A	Cheltoni	D	Mrs. Coombs
C	Distinction	B	Mrs. F. W. Vallis
C	Dorothy Gouldsmrith	C	Mrs. Guy Paget
C	Duchess of Bedford	C	Mrs. Henry Perkins
C	Etheli Ftzyroy	C	Mrs. J. A. Miller
C	Evelyn Archer	H	Mrs. J. Bryant
A	G. J. Warren	G	Mrs. Norman Davis
J	H. Stevens	G	Mrs. R. D. Eves
C	H. Wood	E	Mrs. R. C. Pulling
I	J. Turk Adams	M	Mrs. Tom Fogg
N	Jumbo	C	O. H. Broomhead
G	J. W. Moorman	B	Pride of Madford
D	Lady Hanham	C	R. C. Pulling
G	Lady Harmsworth	C	Richard Vallis
A	Lord Ludlow	H	Silver Cloud
I	Madame Gustave Henry	B	Sir Herbert Kitchener
F	Madame Herrewege	C	Thomas Stevensou
B	Madame R. Oberthnr	I	Tom King
C	Miss Elsie Fulton	C	Viola
C	Mdlle Anna Debono	D	Vivian Morel

**THIRTY-SIX INCURVED VARIETIES.**

B	A. H. Hall	E	Mr. James Murray
D	Baron Hirsch	G	Mrs. A. H. Hall
A	Charles H. Curtis	G	Mrs. C. Crooks
G	C. J. Ellis	H	Mrs. F. Ashworth
E	Chrysantheme Bruant	F	Mrs. F. Judson
A	Duchess of Fife	A	Mrs. Henry J. Jones
B	Frank Hammont	C	Mrs. J. Wynn
E	Fred Palmer	C	Mrs. N. Molyeux
A	Globe d'Or	C	Mrs. Thos Wood
E	Hanwell Glory	A	Pantia Ralli
G	Ialene	C	Peace
A	Lady Isabel	G	Pearl Palace
E	Mdlle Luciei Faure	E	Perle Dauphinoise
E	Madame Ferlat	E	Ralph Hatton
E	Ma Perfection	A	Souvenir de Wm. Clibran
E	May Phillips	E	Topaze Oriental
L	Miss Nellie Hall	E	Triomphe de Montbrun
E	Miss Nellie Southam	E	William Higgs

## Insects and Diseases.

Chrysanthemums are as liable as other plants to certain insect pests and diseases, and the higher the state of perfection attained in its cultivation the greater are the number of its enemies. The painstaking and skillful cultivator who employs every possible means to keep his plants in health and vigour will not, as a rule, be troubled to any serious extent by these foes, while on the other hand the grower who neglects his plants in any way is sure that they will fall an easy prey to the ravages of their insect enemies.

A brief reference is given to the various animal and fungoid pests which the grower has to deal with during their cultivation.

**RUST**—This pest has only put in an appearance within the last few years. It is not confined to Chrysanthemums alone, its natural host-plant is the Hawkweed (*Hieracium*) hence its specific name *Puccinia hieracii*, and is allied to the Hollyhock Fungus.

The germs of the Fungus in question attack the tissues of the leaves usually on the underside, where each quickly forms a pustule, or small pimple-like growth; the point of this, in due course, opens and discharges a dark-brown dust, which really consists of ripe spores, or seed of the fungus itself.

The spores or germs are of two kinds. The summer fruiting spores which are formed during the summer and germinate directly they find a suitable resting place, and the winter or resting spores technically called the uredospores which do not germinate the same season but remain inactive till the following spring, when they develop and give rise to a fresh crop of fruiting spores. This crop, if not checked in time, makes rapid progress, therefore, the first thing to be done when a plant is seen to be affected with the dreaded fungus, is to isolate it, pick off the diseased leaves at once and burn them. Other suspected plants should also be placed by themselves.

Directly afterwards, spray the foliage with a solution of sulphide of potassium at the rate of an ounce to two and half gallons of tepid water once or twice. If the disease has not advanced too far this will check it.

As a preventive the whole collection may be syringed, with this solution every ten days during the spring and early summer, after which there will be little danger of the much-dreaded rust appearing that season.

Care should be taken not to propagate from infected plants.

**LEAF-SPOT**—This particular disease is caused by a fungus called *Septoria Chrysanthemi*. The leaves are infected by dark-brown spots, which seriously disfigure and weaken the growth of the plants. The infected leaves are removed and burned, and as a preventive against a second attack, the foliage is sprayed with the potassium Solution.

**MILDEW**—A form of mildew peculiar to these plants and scientifically known as *Oidium Chrysanthemi* also does much damage in some seasons. It appears in the form of a white woolly-looking growth over the surface of the leaf. Dusting with flower of sulphur is one of the simplest remedies and if applied in time will generally check, if not cure, an attack.

**LEAF-MINING MAGGOT**.—The larva of the Marguerite Leaf-mining Fly (*Phytomyza affinis*) is a very troublesome enemy to the Chrysanthemum and does considerable injury to the leaves by boring small channels between the two surfaces, consuming the parenchyma as it goes, and leaving an unsightly white mark. The best remedy is to constantly watch the leaves for the first appearance of the maggots, and when seen either pinch off and burn the infected leaf or crush the maggots between the finger and thumb.

**APHIDES**.—The Aphides which infest Chrysanthemums are of two kinds. The common greenfly (*Rhopalosiphon Dianthé*) so prevalent on roses, which is probably the most frequent and troublesome pest affecting the

Chrysanthemum and the Black Aphis (*Aphis Rumicis*). They both settle in the points of tender shoots, puncture the epidermis, and extract the sap from the cells, thus weakening the growth of the plant. A good remedy is to dust the shoots with tobacco powder when the Aphides are on, and leave it for a day, then syringe off.

**EARWIGS.**—The Earwig (*Forficular auricularis*) is a source of great trouble to the grower, it eats the points of the shoots, leaves, and even the buds themselves while young. The best way to destroy earwigs is to trap them by means of small pots, half-full of dry moss inverted on the tops of sticks, emptying the contents and destroying them every morning.

**THRIPS.**—The Thrip *minutissima* often infects the leaves in hot or dry weather, and if they get into the points of the shoots will do a lot of damage especially while the buds are being formed. Syringing with sooty water and an occasional dusting with tobacco powder will keep in check this pest.

**BUGS.**—The chief of these mischievous insects a grower has to cope with is *Anthocoris memorum*. It punctures the buds and prevents them opening properly. Other species of bugs which frequently do harm to the buds are *Calacoris bipunctata* and *Phytocoris campestris*. These little scamps are responsible for the black spots one gets on the lovely white flowers early in the season. They are very difficult to catch amongst the plants. Dusting with tobacco powder will keep them off.

In addition to the foregoing pests, woodlice, ants, slugs and other insects prove very troublesome to Chrysanthemum growers. A constant watch must be kept on the plants for the first appearance of these mischievous insects, and prompt and effectual measures taken to exterminate them before injury is done. The Ladybird must, however, be regarded as not only innocuous, but even beneficial, and should not be interfered with.

## CAMELLIAS. AZALEAS, RHODODENDRONS AND GARDENIAS.

These can be grown in Malta and require much the same sort of treatment, but as a rule they should have a special soil, either peat, or terra di bosco, or if that is not procurable they will grow in a mixture of Malta red earth, well washed coarse sand, procurable in Malta, carob leaf mould, or decayed wood from the carob tree in equal portions. These plants when imported do well for a year or so and then generally die off; but there are some specimens which have been in the island for years and are still doing well; and there does not seem to be any good reason why they should not, but as they are generally kept in pots, they consequently require more attention than if in the ground, and so are sometimes forgotten. —Colonel Francia, M.V.O. writes:—"I imported my first Azaleas (6) from Florence eight years ago, they flowered the first year and did very well for five years, when they began to decline and five out of the six are now unfit for showing, the other one has however flowered quite nicely this year. The soil I have used is "terra di bosco" and they have been kept under the shade of orange trees, and during the dry season the ground on which they stood has been watered and they have been syringed generally twice a day. I have since imported 12 plants (larger than the first lot) from Belgium, and in this their third year in Malta they have flowered beautifully, I have never tried them in the open ground.

As to Rhododendrons, I have still three fine plants imported three years ago; they have kept fairly well under the same conditions, but they have flowered irregularly, one has flowered already (in April) and another will be, in full bloom in another week.

I have had very few Camellias and have not done well with them. I find that Azaleas do not grow much larger after they are imported.

It is better to import large plants as there is more chance of their succeeding.

## PALMS.

Palms for indoor decorative purposes should as a rule be kept in small pots, the roots generally congregate at the bottom, so the drainage must be good and they should be taken outside and thoroughly watered once a week, and the leaves washed both on the under and upper surface with soapy water, and well syringed with clean water afterwards. When the pot is getting too full of roots in order to avoid giving it a larger pot, the soil should be allowed to get quite dry, the plant taken out of the pot and any loose soil removed, avoiding disturbing the roots as much as possible, especially the small ones. With the more hardy palms, like *Latantias* and *Phoenix* a portion of the large roots at the bottom can be cut away and any decayed roots removed. This must be done with a sharp knife and with great care and judgement. The *Kentias* and more delicate palms do not seem to like having their roots cut and I find root pruning with all palms rather a risky performance—but when the soil is quite dry some of it can be shaken away or removed and the plant replaced in the same pot with the addition of fresh soil. Palms do well in red earth, leaf mould, coarse sand, and rotted manure. Repotting can be done in April and May.

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## CACTI AND SUCCULENTS.

Nothing is more effective or easier to grow in Malta than the family of the Cactus and allied plants and all succulents—such as *Euphorbias*, *Sempervivums*, *Mesembrianthemums*, *Aloes* &c. A rockery, can be easily formed by placing the ordinary rough stones found everywhere in the island, in a heap in a corner of the garden, and filling in with earth, and it can be made in a short time to look quite picturesque and green by planting any of the above. They will need very little care after once becoming established, as the fleshy nature of the plants absorbs a great deal of moisture in wet weather and from the heavy dews at night during the dry months, and so they do not suffer from the

hot sun and long rainless summer. The flowers of some of the Cactii are among the most beautiful in the world, and used to be very popular in Malta on account, no doubt, of the easy manner in which they may be grown; and they also thrive when scarcely any other form of vegetation can live.

The following Cacti and succulents succeed very well in Malta and are very effective:—*Opuntia*, *Ficus-Indica*, *Agava Americana*, *Aloe pieta*, *Ciliaris*, *Frutecens-Gasterias*, *Yuccas* and many others too numerous to mention.

A good number of the *Saxifrages*, *Sedums*, and other plants which are seen in rockeries in other countries, do very well in Malta.

## SOWING SEEDS.

In the country, seeds are generally sown in the open ground, which should be prepared by mixing some well rotted manure with the soil; each patch is surrounded by a little ridge of earth about two inches high to prevent the water running off when watering: a good plan is to water the patch first and then scatter the seeds over; press them down lightly with the hand and then cover them with fine soil and sand mixed—then water again through a fine rose: for the first few days the seeds should be protected from the sun by a covering of straw or leaves, which can be removed when the seeds begin to sprout. Insect pests, especially snails and slugs must be kept off, or your seed bed will soon be destroyed. This can be done to a great extent by covering the patch over with wood ashes, which is bitter to the taste of these marauders—but if the garden is small or there are a great number of insects about, then seeds must be sown in boxes, seed pans or pots, which can be raised off the ground and even covered at night with glass—this latter plan should always be followed in case of small or delicate seeds as they can be moved about and put under cover if necessary—especially during heavy rains,—but as a rule you get better seedlings

and more handy plants when it is possible to plant in the open ground. As soon as the seedlings are sufficiently large to require thinning out, it should be done in the ordinary way, either into the ground, or into pots, singly, or in groups, as required.

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## BULBS.

A practical Maltese Gardener says:—

“Whenever possible I like to leave all the spring bulbs in the ground and during the hot months of July and August, and a part of September cover the ground with dry leaves to protect them from the sun; then every second year, before the rains come in September, they should be lifted, separated, the ground well dug and manured, and the bulbs replanted at once either in the same ground or in another part of the garden. This of course is not practicable if the ground is required for any other purpose during the summer, as it would not do to give water to the ground after the bulbs are once dried. I lose less bulbs this way than when they are lifted and stored. But all bulbs when in the ground or in pots should not be entirely left without water so long as there is any green left in the leaves. Even if the bulbs are taken up and stored, they should not be left in too dry an atmosphere, otherwise they will shrivel up—in the same way, if they are left in the ground and not screened from the very hot sun they will also dry up—in the latter case a little sprinkling with water now and then will do no harm”.

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## WORKING THE SOIL.

It has been already mentioned in these notes that the soil should not be dug or worked when it is wet, as it does more harm than good; it remains in lumps and becomes hard and unfit for cultivation. But during the summer, or in dry weather, when plants require to be watered, not only in the grounds but in pots, it will be

noticed that on the second or third day after watering, according to the weather, the earth will show signs of cracking, it should then be dug with the hoe or the usual implement in general use in this country—to the depth of about three or four inches. On the following day it will be found that the earth so dug has become dry enough to be reduced to a fine powder if it is well raked over, this in the case of roses and delicate plants should then be done. The following day, on at least on the second day the top of the bed will look as if it had not been watered for a month, but if you remove an inch or so of the powder you may for days to come notice that below the covering of dry earth the soil is far damper than if it had been left untilled. But there are other reasons why this hoeing of the soil is not only beneficial but absolutely necessary for the well-being of the plant or shrub. It must be remembered that plants have to get their nourishment from the soil in a form in which they can absorb it. Free access of the air to the soil reduces by chemical action some of the solids to a condition in which the plant can assimilate them. On the surface of all cultivated soils there exist billions of minute bacteriae who require for this work plenty of fresh air. The part these minute organisms play in nature's economy is to convert waste matter such as manure into plant food, and the more freely the earth's surface is aerated the better they perform their task. Now it will be readily understood that when the earth is broken up, so as to be easily penetrated by roots, when it is always warm and damp, every inducement is offered to the plant to throw out a number of roots near the surface of the ground. These roots are usually of a fine fibrous character as opposed to the thick fleshy roots which dive down deep into the soil: Every fruit grower knows that unless his trees have quantities of fibrous roots, his crop will be small; for the same reasons, unless the gardener takes care to hoe the ground after watering, he will not get good blooms on his rose trees or other flowering plants.

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## GARDEN PESTS.

The Gardener in Malta has to fight against the usual insect pests which devastate gardens elsewhere, such as aphids, caterpillars, cabbage grubs, snails, slugs and wire worm, and they must be dealt with as is usual in other places—ants are also very troublesome and over-run the garden sometimes—the great thing is to disturb them as much as possible by dosing their runs with tobacco water, and where possible pour some petroleum into their nests. They can be collected by placing pieces of meat or fresh bone, or better still a piece of fresh ox-skin with some fat adhering to it near their runs, where they will collect on it in thousands and can then be shaken off into a bucket of water and destroyed—the piece of skin serving some time. Tape dipped in tar tied round the trunk of a plant or tree often prevents ants crawling up it.

Another tiresome enemy in the months of April and May to peas, beans, geraniums, pelargoniums, ivy, and coleus, is the broom rape, this parasite attaches itself to the roots of the plant, and if not at once eradicated will very soon destroy it altogether—it is produced from a very small seed and thrives best in a light soil—in some parts of the island when there is a good deal of clay in the soil, peas and beans are not attacked. There is no known remedy for it.

In May and June the garden is visited by the Barbary Bug or “Busuf” as it is called, a hairy backed insect with small wings, which attacks the petals of flowers then in bloom, more particularly the white or light colored flowers and all white lillies. The only remedy is to pick them off the flowers and destroy them: during the bright sun they are very lively and fly about, but are rather dull and sleepy in the mornings and evenings—they do not attack flowers which are in the shade so much as those which are exposed to the sun:—they are less plentiful as a rule after a wet winter.

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## BULB GROWING IN MOSS FIBRE.

For those who have no garden, or even for those who have and who are fond of flowers in the house, the growth of bulbs in moss fibre and ground shell, in china vases without drainage, is a great attraction and can be carried out with success. This has been already done by several amateurs in the island. Roman Hyacinths, Freezias, Nacissie, Tulips, Dutch Hyacinths, Lily of the Valley and in fact many other bulbs can be grown in this way, and the advantage of the system is that the vases can be placed any where about the house without fear of any mess from water or soil coming through the base of the pots. The moss fibre is perfectly odourless and clean to handle if specially prepared for the purpose. All information on the subject can be obtained from Mr. Robert Sydenham Tenby Street, Birmingham who will supply the bulbs and fibre and all necessaries, and who also publishes a useful pamphlet giving full information and instructions.

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